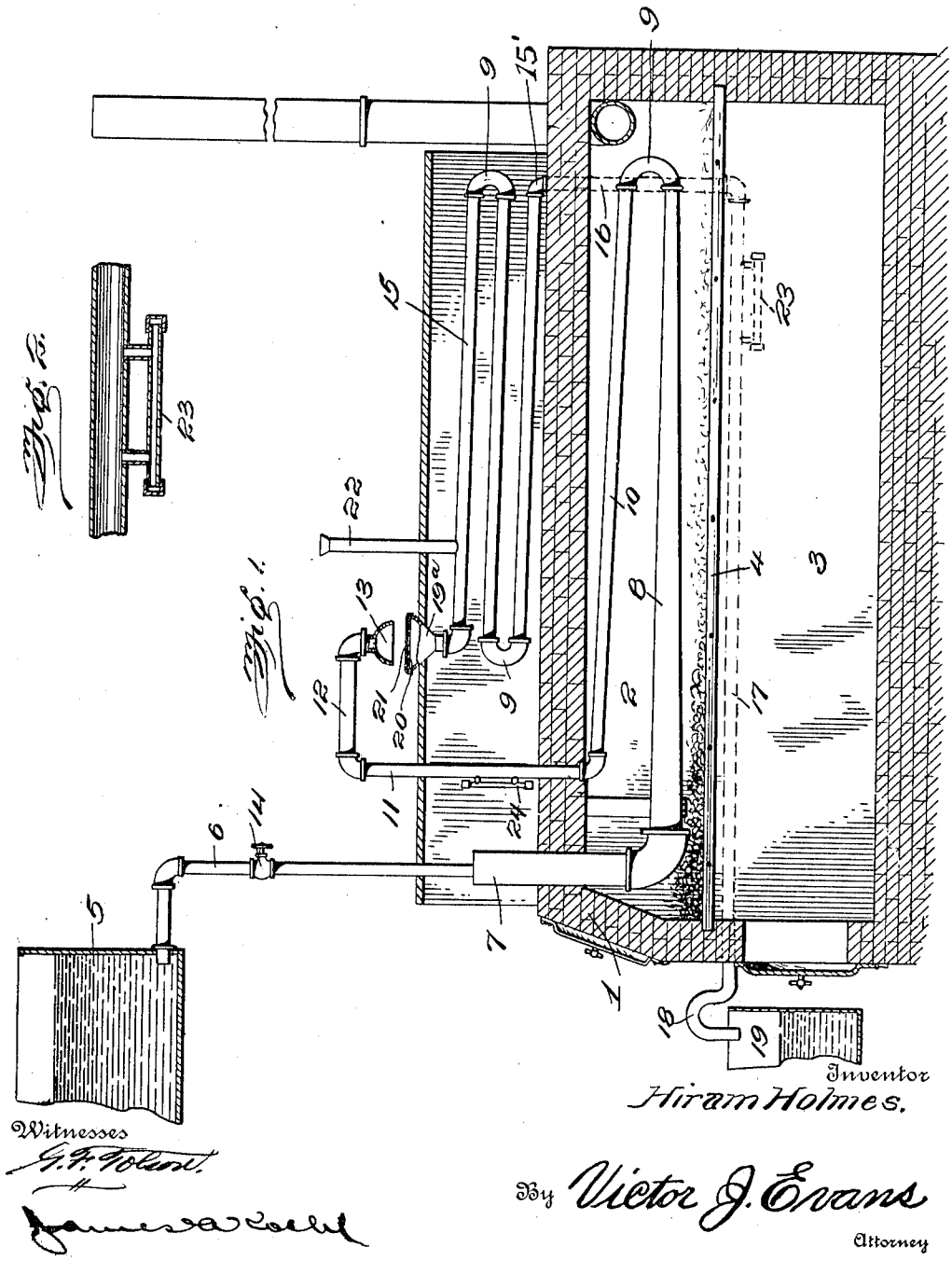
H. HOLMES.

EVAPORATING PAN.

APPLICATION FILED AUG. 17, 1909.

1,012,550. Patented Dec. 19, 1911.



Witnesses

G. F. Tolson.

James A. Tolson

Inventor

Hiram Holmes.

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

HIRAM HOLMES, OF CLARENCE TOWNSHIP, CALHOUN COUNTY, MICHIGAN.

EVAPORATING-PAN.

1,012,550. Specification of Letters Patent. Patented Dec. 19, 1911.

Application filed August 17, 1909. Serial No. 513,227.

To all whom it may concern:

Be it known that I, HIRAM HOLMES, a citizen of the United States, residing in Clarence township, in the county of Calhoun and State of Michigan, have invented new and useful Improvements in Evaporating-Pans, of which the following is a specification.

This invention relates to syrup cookers, and has for an object to provide an apparatus of this character that will be extremely simple in construction and which when in operation will effectively serve to relieve the boiled syrup of all steam or watery matter before the syrup is finally discharged from the apparatus.

The above mentioned and other objects are attained by the construction, combinations and arrangements of parts, as disclosed on the drawing, set forth in this specification, and particularly pointed out in the appended claims.

In the drawing, forming a portion of this specification and in which like numerals of reference indicate similar parts in the several views:—Figure 1 is a detail vertical section taken longitudinally through the apparatus. Fig. 2 is a detail section through a portion of the boiling pipe showing the gage therefor.

My improved syrup cooker consists of a rectangular furnace 1 which may be of any suitable well known construction, but as herein illustrated the said furnace is provided with a fire box 2 and an ash pit 3 which are separated from each other by longitudinal grate bars 4. A sap supply tank 5 is located at a suitable point above the apparatus and has connected therewith a pipe 6 which has a portion extended downwardly toward the fire box of the furnace, and as illustrated, the lower extremity of this portion is tapped into the upper extremity of a vertical pipe 7 which is preferably of greater diameter than that of the pipe 6. The pipe 7 is provided with a portion 8 which extends approximately throughout the entire length of the fire box, and at one end this portion of the pipe is connected by a coupling 9 to a boiling pipe 10 which also extends approximately throughout the length of the fire box and is preferably located immediately above the portion 8 of the pipe 7. The pipe 10 carries at one end a discharge tube or pipe 11 upon which is formed a horizontal conveying tube 12 which carries a depending substantially bell or inverted funnel shaped discharge mouth 13. The pipe 6 is provided with a manually operated feed valve or gate 14 whereby the desired quantity of sap from the tank 5 can be introduced into the pipes 7, 8 and 10 respectively.

An evaporating pipe 15 is mounted above the furnace and is preferably disposed above the pipes 8 and 10. The pipe 15 is in the form of a vertically arranged serpentine coil and is provided at one of its extremities with a laterally projecting portion 15′ terminating in a depending portion 16 from which extends a longitudinally extending portion 17 which is located at one side of the fire box 2 of the furnace. The portion 17 of the serpentine pipe carries a discharge nozzle 18 which is located immediately above a syrup-receiving tank or receptacle 19. The other end or extremity of the serpentine coil is provided with a funnel shaped mouth 19^a which is located immediately beneath the mouth 13 hereinbefore described. The mouth 19^a is provided with a covering of wire or strainer forming material 20 and with a layer of fabric material 21 through which the syrup when discharged from the boiling pipe can percolate and be finally discharged into the serpentine pipe. The serpentine pipe is provided adjacent to the mouth 19^a with a steam discharge connection 22 which opens directly into the atmosphere. The portion 17 of the serpentine pipe is provided with a horizontally disposed gage 23 which may be of any desired well known construction which will enable the operator of the apparatus to determine whether or not a sufficient charge of sap is being introduced into the boiling pipes. The tube or pipe 11 is provided with a gage 24 which may be identical with the gage 23.

In operation of the apparatus, a fire is first built in the furnace and after the boiling pipes have become properly heated, the valve or gate 14 is actuated to permit the desired quantity of sap to flow into the pipes 8 and 10 whereby the sap can be thoroughly boiled. After the desired quantity of sap has been operated upon as above described a further charge may be introduced into the pipes 8 and 10 to permit the lighter or boiled sap to rise in the tube 11 where it may be discharged into the mouth 19^a and conveyed through the serpentine pipe 15. The serpentine pipe is provided so that the sap can be condensed after the boiling operation and

before it is finally discharged into the tank or receptacle 19. The mouth 13 is disposed immediately above the mouth 19ª and is suitably spaced therefrom so that steam can effectively escape to the atmosphere when the syrup is discharged from the boiling pipe into the pipe 15.

It will of course be understood that a quantity of steam will arise from the syrup after the same has been discharged into the serpentine pipe and I therefore provide the latter with the hereinbefore described steam discharge connection 22. In this manner it will be seen that most of the water of condensation will be discharged from the boiling pipes before the syrup has been finally discharged into the tank or receptacle 19.

The apparatus is extremely simple in construction and the arrangement of the respective parts forming the apparatus enables the same to be placed in a very small floor space as will be appreciated.

It will of course be understood that the gages 23 and 24 are merely provided for the purpose of providing an observation whereby it may be conveniently and readily determined whether or not a proper amount of syrup is being introduced into the said primary boiling pipes and into the said secondary boiling pipes.

I claim:—

1. In an apparatus of the class described, a furnace, a sap tank, a boiling pipe extending throughout the length of the furnace and connected at one end with the sap tank and provided at its other end with a discharge mouth, and an evaporating pipe having a portion extending above the furnace and a portion extending along one side of the furnace and provided at one end with a discharge nozzle and at the other end with a strainer-carrying nozzle, the last nozzle being disposed immediately beneath the mouth of the boiling pipe, said evaporating pipe having a steam discharge connection which opens into the pipe adjacent to the receiving nozzle of said boiling pipe.

2. In an evaporating pan, a furnace, a sap tank having a boiling pipe extending longitudinally of the furnace above the grate thereof and connected at one end with the sap tank, the other end of the said pipe being provided with a bell-shaped discharge mouth, an evaporating pipe having a portion extending above the furnace and a portion extending longitudinally of the same and at one side thereof and formed at its lower end into a discharge nozzle, a steam discharge pipe carried by the evaporating pipe, and an intake mouth-forming member at the opposite end of the said evaporating pipe, said intake mouth-forming member being disposed in spaced relation to the discharge mouth of the said boiling pipe.

3. An apparatus of the class described, comprising a furnace, a boiling pipe, said pipe having a discharge mouth at one of its ends, and an evaporating pipe of serpentine form, said second named pipe having a strainer carrying mouth located immediately beneath the discharge mouth of the boiling pipe, a syrup receiving tank, said evaporating pipe having one of its ends formed into a discharge nozzle and disposed immediately above the syrup receiving tank and a steam discharge connection carried by the evaporating pipe.

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

HIRAM HOLMES.

Witnesses:
W. C. Corey,
H. L. Corey.