No. 814,901. PATENTED MAR. 13, 1906.

H. COPILOVICH.

WOOD STILL.

APPLICATION FILED JAN. 12, 1905.

Fig. 1.

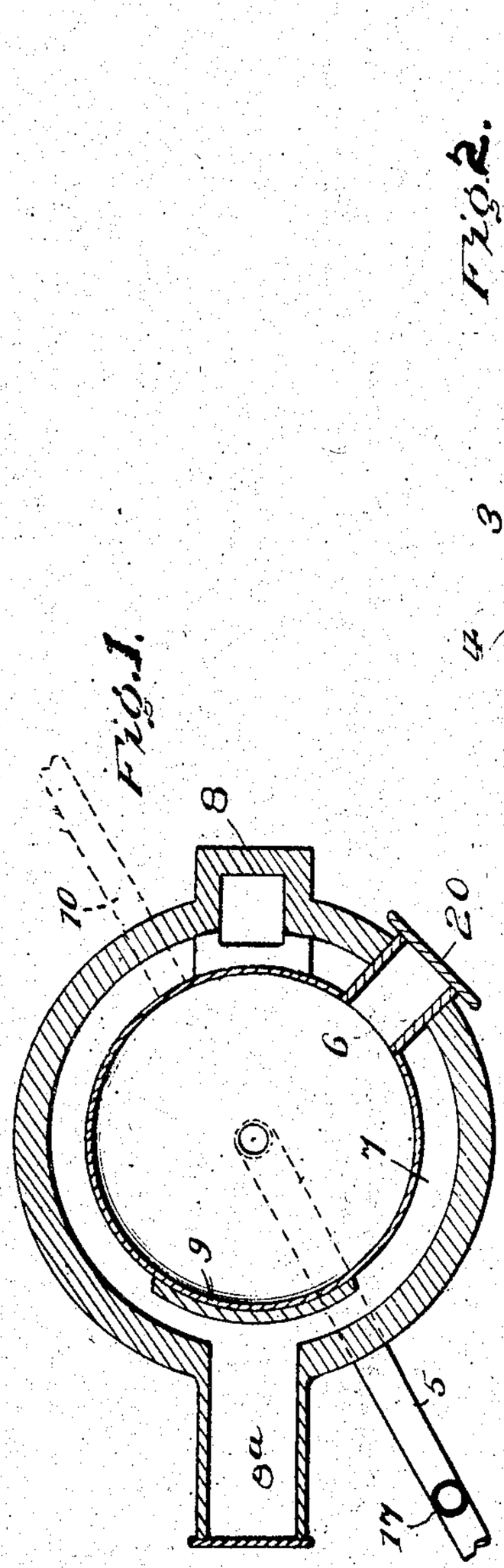
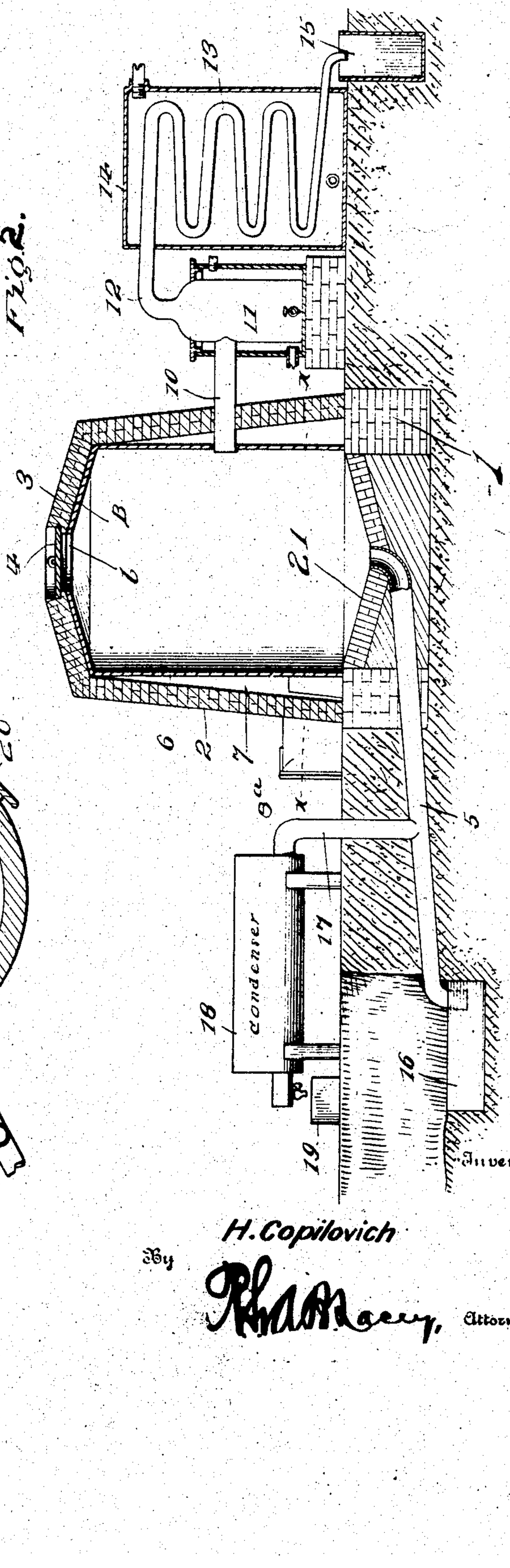


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

HENRY COPILOVICH, OF HINCKLEY, MINNESOTA, ASSIGNOR TO STANDARD TURPENTINE MANUFACTURING CO., OF ST. PAUL, MINNESOTA.

WOOD-STILL.

No. 814,901. Specification of Letters Patent. Patented March 13, 1906.

Application filed January 12, 1905. Serial No. 240,789.

To all whom it may concern:

Be it known that I, HENRY COPILOVICH, a citizen of the United States, residing at Hinckley, in the county of Pine and State of Minnesota, have invented certain new and useful Improvements in Turpentine-Stills, of which the following is a specification.

This invention provides a novel apparatus for collecting turpentine in the destructive distillation of wood as well as saving the by-products, such as tar and the oil thereof.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a longitudinal section of an apparatus embodying the invention. Fig. 2 is a horizontal section of the retort and furnace on the line *x x* of Fig. 1.

Corresponding and like parts are referred to in the following description and indicated in both the views of the drawings by the same reference characters.

The foundation 1 of the furnace is preferably of masonry and is of a form in plan view approximating the outline of the furnace 2, erected thereon. The furnace in its preferable construction is of frusto-conical form, the crown 3 having a central opening which is closed by means of a removable cover 4, through which the wood or material is fed to the retort. The floor 21 of the retort inclines from its outer edge to a central point, from which a pipe 5 leads outward and downward in an inclined direction, so as to carry off the tar and like heavy products resulting from the destructive distillation of the wood. The retort comprises a shell or casing 6, of metal, which rests upon the foundation 1 and is closed at its lower end thereby. The inclined walls 2 of the furnace gradually approach the shell at their upper ends and touch the sides thereof, forming a space 7, which tapers toward its upper end and through which the heat and products of combustion pass. The upper end of the shell 6 is closed by the crown B, having a central opening *b*, which is closed by the cover 4 when the retort is in operation. The stack 8 communicates with the hot-air space 7, and the fire-arch or combustion-chamber 8ª connects with the lower portion of said space 7. A protecting-plate 9, of tile, fire-brick, or other refractory material, is placed against a portion of the retort 6 directly opposite to and near the inner end of the fire-arch or combustion-chamber, so as to prevent direct action of the flame upon this part of the retort to avoid overheating and burning of the material under treatment.

A pipe 10 connects with the retort at a point about midway of its upper and lower ends and is designed to carry off the vapor, which when condensed constitutes the turpentine. The pipe 10 connects with a condenser 11, which eliminates the heavier products, the lighter vapors passing off through pipe 12 and being condensed in the worm 13, the turpentine passing from the condenser into a receptacle 15. The best results in the collection of the distillates are obtained by connecting the pipe 10 with the retort at approximately a medial point, this having been determined by experiment.

The inclined pipe 5 is arranged to deliver the tarry products into a receptacle 16. A pipe 17 connects with the pipe 5 and is designed to carry off steam and like vapor arising from the heated tar in its passage through the pipe 5, said vapor being reduced in a condenser 18 and the resultant product, chiefly oil of tar, being collected in a receptacle 19.

The wood to be treated is supplied to the retort 6 through the opening in the crown 3, said opening being subsequently closed by the cover 4, which is secured in place in any manner. A fire being started in the arch or combustion-chamber 8ª heats the retort, producing flame and heat, which enter and circulate through the space 7, surrounding the retort, and pass off through the stack 8. The products eliminated from the wood during the destructive distillation pass off through the pipes 10 and 5 in the form of vapor and liquid, the latter consisting chiefly of tar, which collects at the bottom of the retort and passes off through the pipe 5, whereas the vapor resulting in turpentine passes off through the pipe 10, through condensers 11 and 14 in the manner stated. The charcoal produced as the result of the distilling process is removed from the retort through the door 20.

The crown 3 may be variously formed, either as a part of the retort, a part of the masonry, or both. The floor or bottom 21

may be tile, metal, or other material, but is depressed to direct the distillate to a common point of discharge.

Having thus described the invention, what is claimed as new is—

In an apparatus for the destructive distillation of wood, a masonry furnace comprising foundation-walls and a crown, the said walls inclining toward their upper ends or top, and the foundation being provided with a depressed floor, a bottomless metal shell in the form of a right cylinder supported on said foundation within the masonry walls with its upper end or top in contact with the masonry crown and its lower open end resting on the foundation and surrounding the depressed floor thereof, means for heating said furnace and shell, means for withdrawing the lighter distillates from the shell, a downwardly-extending pipe having one end located at the bottom of the depressed floor and designed to receive the tarry products, the other end of said pipe being arranged to discharge such products into a suitable receptacle and said pipe being provided at a point in its length with a vertical branch pipe 17, and a condenser connected to the upper end of said last-named pipe, as and for the purpose set forth.

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

HENRY COPILOVICH. [L. S.]

Witnesses:
J. E. LYNDS,
LEROY A. FISH.