

No. 774,330.

PATENTED NOV. 8, 1904.

E. A. MOORE.

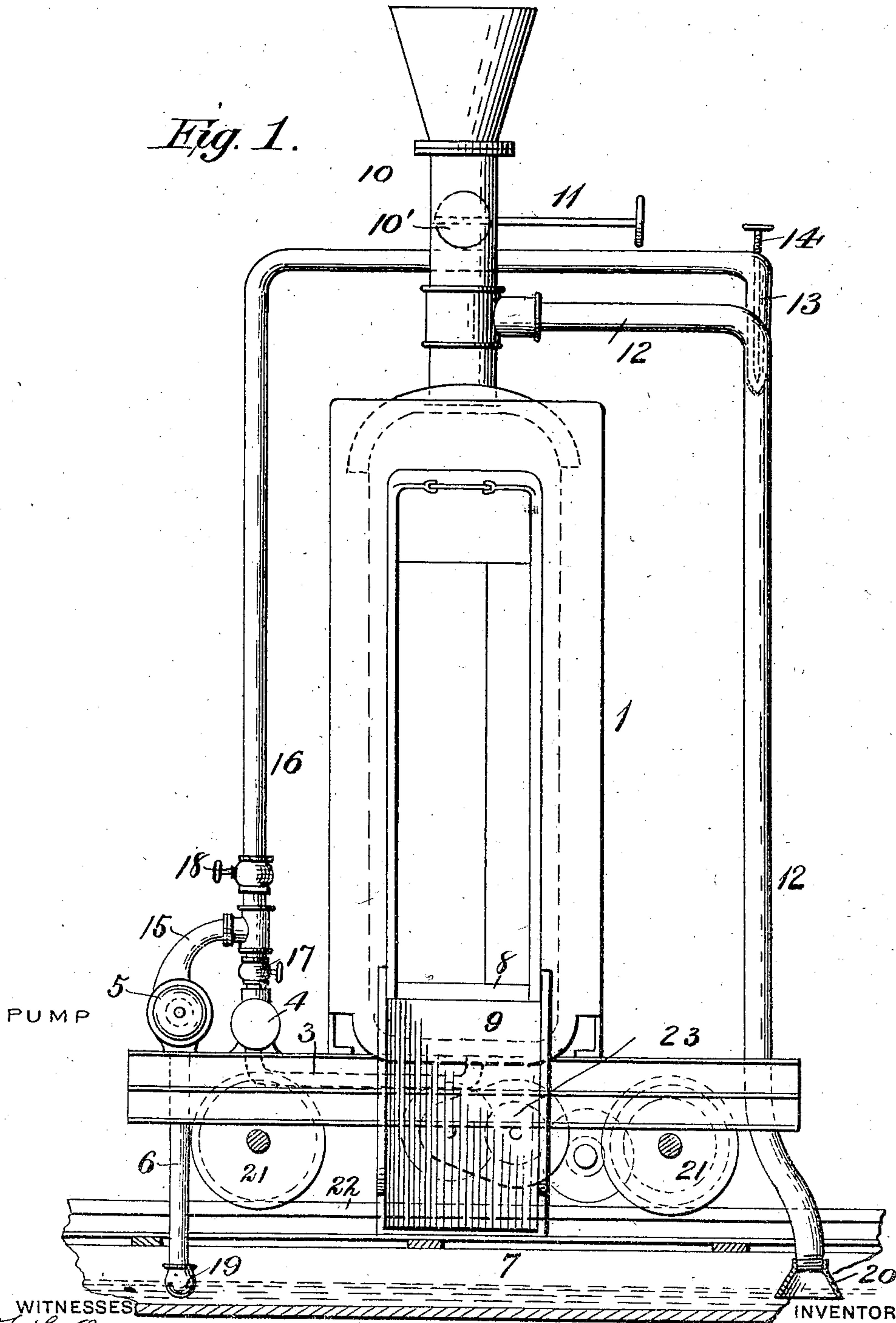
COKE QUENCHING AND BLEACHING APPARATUS.

APPLICATION FILED JUNE 13, 1903. RENEWED JUNE 10, 1904.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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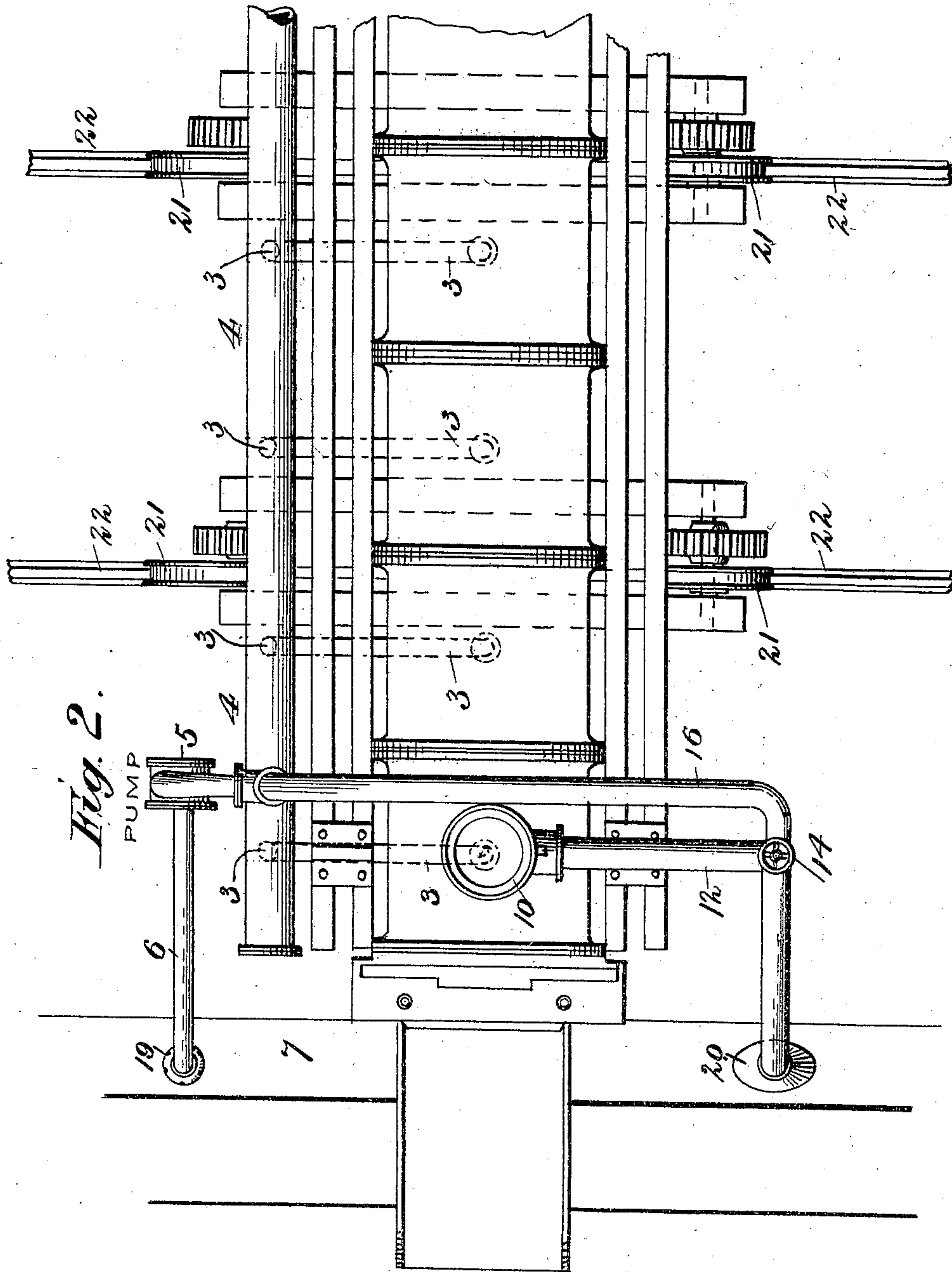
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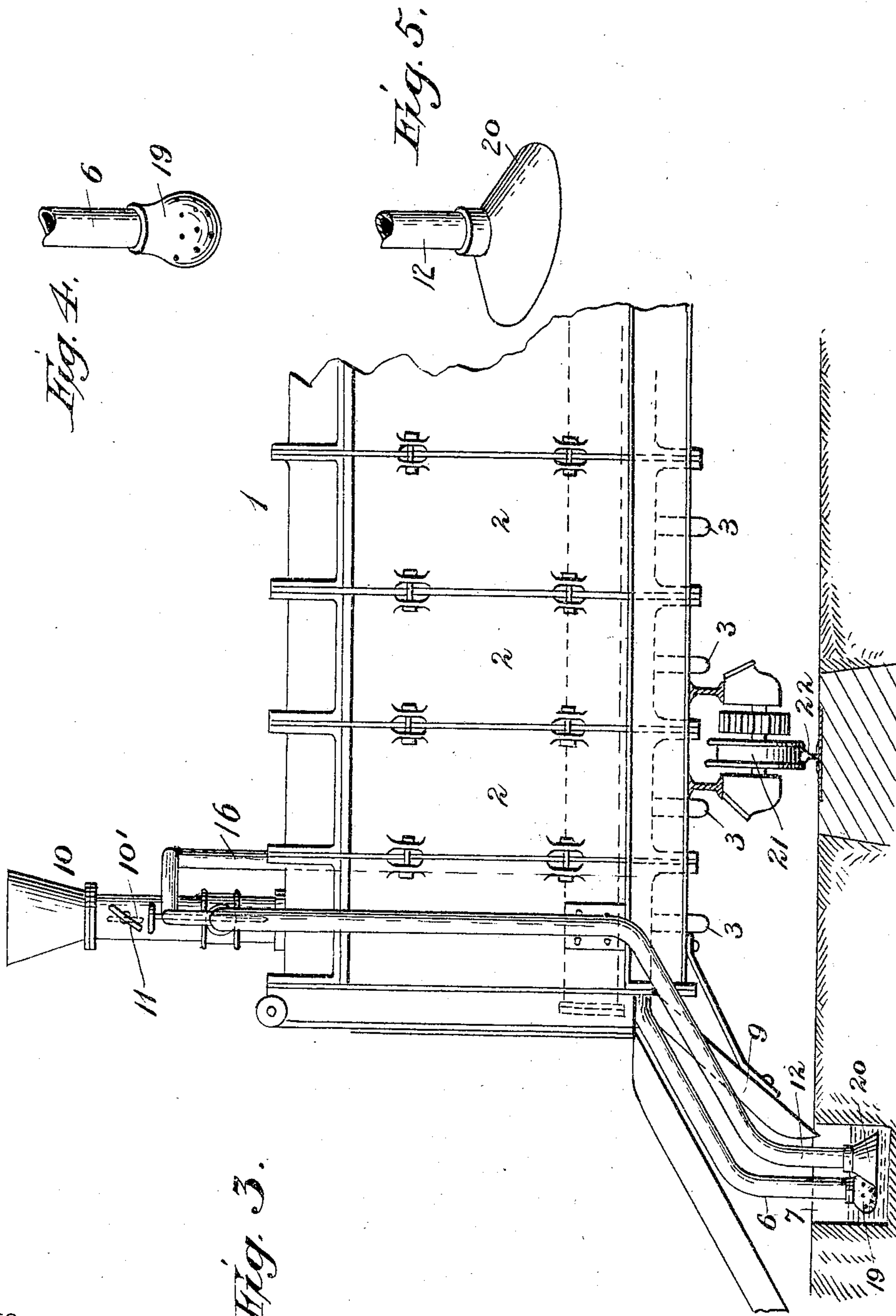
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

EDWIN A. MOORE, OF PHILADELPHIA, PENNSYLVANIA.

COKE QUENCHING AND BLEACHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 774,330, dated November 8, 1904.

Application filed June 13, 1903. Renewed June 10, 1904. Serial No. 211,899. (No model.)

To all whom it may concern:

Be it known that I, EDWIN A. MOORE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Coke Quenching and Bleaching Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates primarily to the art of converting coal into coke by what is known as the "Otto-Hoffman" process, and has especial reference to treating the coke as it proceeds from the ovens for the purpose of quenching and bleaching it; and the invention consists in certain improvements on the apparatus shown and described in my application for a patent filed September 18, 1902, Serial No. 123,925, which will be fully disclosed in the following specification and claims.

In the practical operation of my invention large quantities of water are required to supply the apparatus for quenching the coke and which water when allowed to run off after having been used once causes a great waste of water, which becomes a serious objection in localities where water is scarce or the waste water cannot be conducted away underground. To remedy this, it is my purpose to collect the water as it flows from the quenching apparatus and use the same body of water over and over again and at the same time condense the steam discharged from the apparatus while the quenching and the bleaching of the coke are being effected.

In the accompanying drawings, which form part of this specification, Figure 1 represents an end view of my improved coke quenching and bleaching apparatus; Fig. 2, a top plan view of so much thereof as is necessary to illustrate my invention; Fig. 3, a side elevation of the same; Fig. 4, an enlarged view of the end of the pump suction-pipe, and Fig. 5 a perspective of the lower end of the steam-discharge pipe.

Reference being had to the drawings and the designating characters thereon, 1 indicates

the coke quenching and bleaching apparatus composed of separable sections 2, and each section is provided with a pipe 3 for supplying water thereto from a main pipe 4, extending along one side of the apparatus, and is supplied with water by a pump 5, whose suction-pipe 6 extends into a trench 7, containing water, and which trench extends throughout the length of a battery of coke-ovens.

The water discharged from the quenching apparatus flows from one end thereof through opening 8 into trough 9 and then into the trench 7.

In the stack 10 is a valve 10' of the butterfly type controlled by a rod 11, and connected to the stack below the valve 10' is a pipe 12, which extends down into the trench 7 below the surface of the water for the purpose of conducting the steam from the stack into the trench, and the vertical branch of the pipe 12 is provided with a pipe 13, having a needle-valve 14 for supplying water to the pipe 12 to form a jet-condenser to condense the steam in said pipe 12 while in transit from the stack 10 to the trench 7.

The pump 5 is connected by a pipe 15 to a pipe 16, which is provided with a valve 17 to control the supply of water to the main pipe 4 and with a valve 18 to control the supply of water to the pipe 13 for the jet-condenser.

On the end of the suction-pipe 6 is a strainer 19, and on the end of pipe 12 is an enlarged and preferably an elongated discharge-mouth-piece 20.

In the operation of quenching and bleaching coke coke is discharged from an oven into the receptacle, when its ends are closed and water supplied by the pump 5 or from any other source for the first few ovens of coke or until sufficient water accumulates in the trench 7. The water flows from the apparatus over trough 9 into the trench, and the steam generated by the water coming in contact with the hot coke rises in the stack 10, whose valve 10' having been closed causes the steam to enter pipe 12, in which it is condensed, and the water of condensation flows into the trench 7 so long as the quenching operation continues. After the hot coke has

been deluged with water for quenching the supply of water is cut off and the coke bleached by the steam generated from the water on the surfaces of the coke by the heat in the body
5 of the coke, and this steam is also conducted through pipe 12 and condensed in the pipe or allowed to pass on down into the trench 7. The bleaching of the coke having been accomplished, the valve 10' is opened and the
10 heat in the apparatus allowed to pass off through the stack.

The water in the trench 7 is used over and over again for quenching the coke, resulting in great saving of water.

15 The apparatus is supported on wheels 21, which engage rails 22 of a track which extends the length of the battery of ovens and is propelled by a suitable motor 23.

Having thus fully described my invention,
20 what I claim is—

1. A receptacle for hot coke; in combination with a trench for containing water, means for supplying water from the trench to the re-

ceptacle, and means for returning water from the receptacle to the trench. 25

2. A receptacle for hot coke, and means for supplying water thereto; in combination with means for collecting and condensing steam generated in treating the coke.

3. A receptacle for hot coke, and means for 30 supplying water thereto, a trench for receiving water discharged from said receptacle, and means for conducting steam from the receptacle to the trench.

4. A receptacle for hot coke, and means for 35 supplying water thereto, a trench for receiving water discharged from said receptacle, a pipe for conducting steam from the receptacle, and a jet-condenser in said pipe.

In testimony whereof I affix my signature in 40 presence of two witnesses.

EDWIN A. MOORE.

Witnesses:

C. W. METCALFE,
D. C. REINOHLE.