

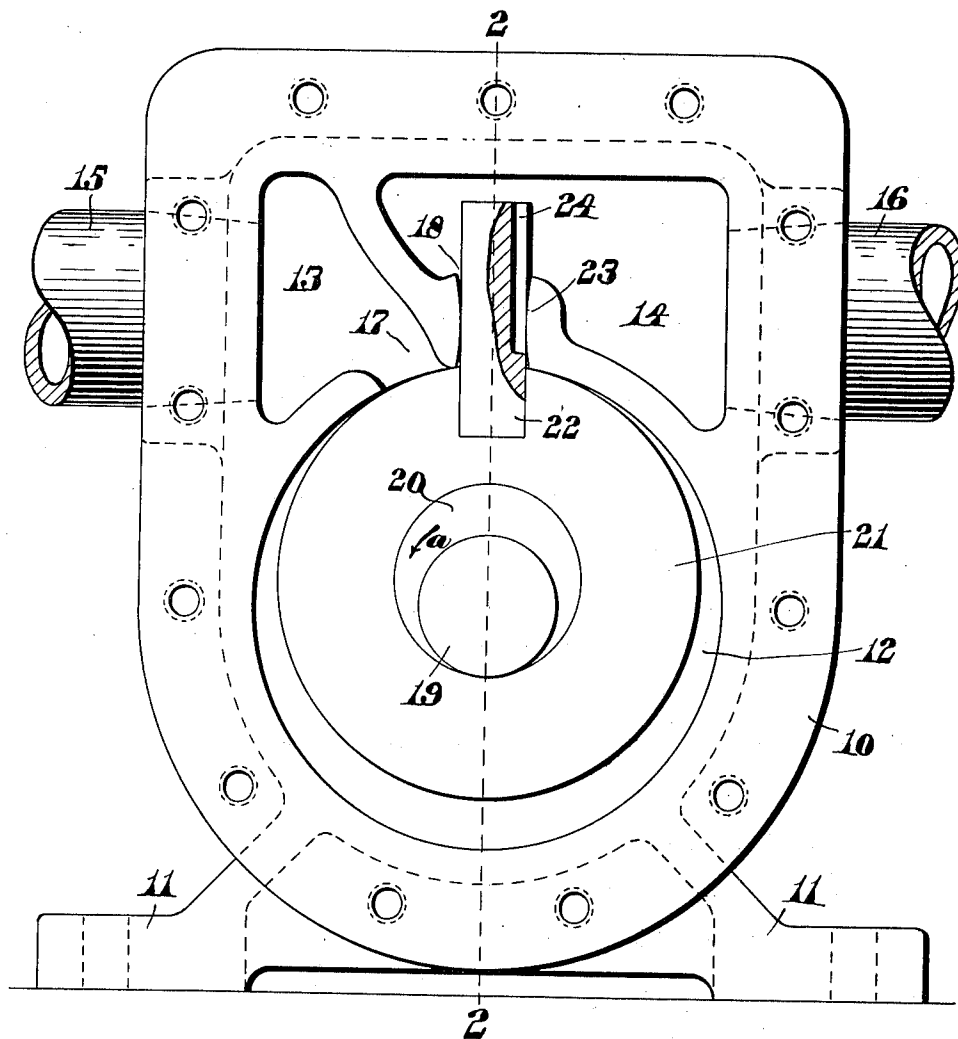
J. R. KINNEY.
ROTARY PUMP.
APPLICATION FILED AUG. 17, 1910.

1,054,210.

Patented Feb. 25, 1913.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
Edna C. Cleveland
Nathan E. Lombard

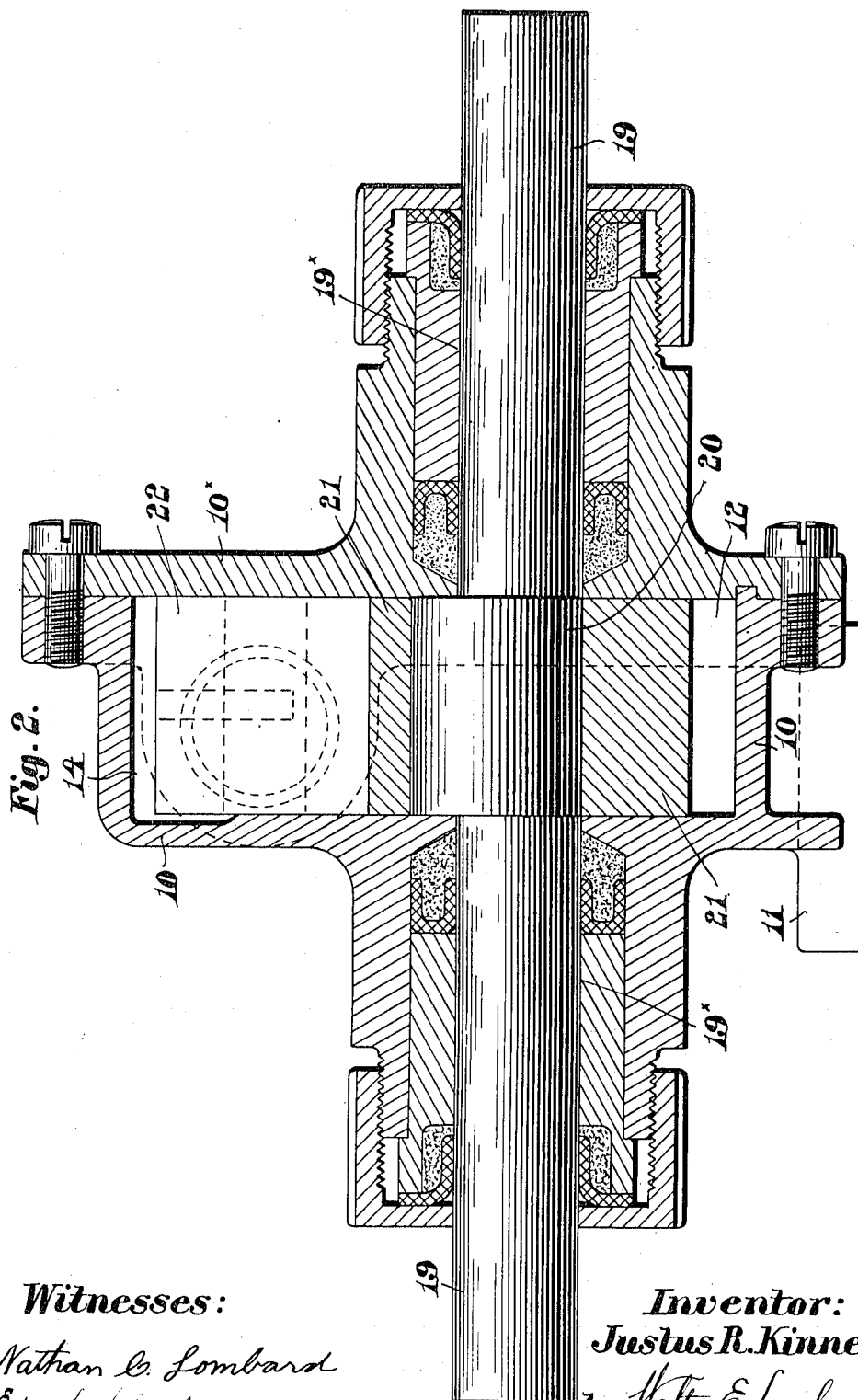
Inventor:
Justus R. Kinney,
by Walter E. Lombard,
Atty.

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Nathan C. Lombard
Eduard Cleveland

Inventor:
Justus R. Kinney,
by Walter E. Lombard,
Atty.

UNITED STATES PATENT OFFICE.

JUSTUS R. KINNEY, OF BOSTON, MASSACHUSETTS.

ROTARY PUMP.

1,054,210.

Specification of Letters Patent.

Patented Feb. 25, 1913.

Application filed August 17, 1910. Serial No. 577,887.

To all whom it may concern:

Be it known that I, JUSTUS R. KINNEY, a citizen of the United States of America, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Rotary Pumps, of which the following is a specification.

This invention relates to rotary pumps and has for its object the provision of a pump of simple construction having comparatively few operating parts, thereby reducing its liability to become inoperative.

The invention consists primarily in providing an annular piston mounted upon a revoluble crank member, with a radial grooved blade which is adapted to reciprocate and oscillate in a communicating passage between the piston chamber and the outlet chamber, and thereby form a passage through which the material is adapted to pass from the piston chamber to the outlet compartment during a portion of the cycle of said crank, the ungrooved portion of said blade forming a valve to close said communicating passage during the remainder of the cycle of said crank.

The invention consists in certain novel features of construction and arrangement of parts which will be readily understood by reference to the description of the drawings and to the claims hereinafter given.

Of the drawings: Figure 1 represents an elevation of a pump embodying the features of the present invention with the end plate removed therefrom and a portion of the blade being shown in section, and Fig. 2 represents a vertical section of the same, the cutting plane being on line 2—2 on Fig. 1. Similar characters designate like parts throughout the drawings.

In the drawings, 10 represents a casing supported by the feet 11 and having a cylindrical piston chamber 12 and inlet and outlet compartments 13 and 14, respectively. An inlet pipe 15 leads to the inlet compartment 13 and a pipe 16 from the outlet compartment 14. A passage 17 forms a means of communication between the inlet compartment 13 and the piston chamber 12 while a similar passage 18 forms a means of communication between said piston chamber 12 and the outlet compartment 14.

Extending through the piston chamber 12 is a shaft 19 revoluble in bearings 19* in the casing 10 and plate 10* and having

formed thereon a crank 20 to which is fitted the annular piston 21, one part of the periphery of which is adapted to be in contact with the cylindrical wall of the piston chamber 12 throughout the rotation of the crank 20.

Radiating from the piston 21 is a blade 22 which fits the passage 18 so as to normally prevent any material from passing from the piston chamber 12 into the compartment 14. The walls of the passage 18 are curved as at 23 in such a manner that in whatever position the blade 22 may be its opposite faces will always be in contact with some portion of the curved wall 23. It is obvious that as the crank 20 revolves the blade 22 will be accorded a reciprocating and oscillating movement in the passage 18. In the position in which this blade 22 is shown in Fig. 1 of the drawing the outlet from the piston chamber 12 to the compartment 14 is closed but when the crank 20 is rotated in the direction of the arrow "a" the blade 22 will be moved downwardly until the groove or passage 24 in the side wall of the blade 22 is uncovered, thereby permitting any material in advance of the piston 21 to pass through this groove 24 into the chamber 14 and out through the pipe 16. This forms a very simple device for closing the outlet passage during a portion of the cycle of the crank 20, it having been found in practice that a better operation of the pump is secured by closing the outlet while the contacting portion of the piston is passing the passage 17.

Having thus described my invention, I claim:

1. In a device of the class described, the combination with a casing having a cylindrical piston chamber, an inlet thereto, and an outlet compartment communicating therewith by means of a rectangular passage immediately adjacent to said inlet and separated therefrom only by a line of cylindrical wall of the said piston chamber; of a crank revoluble in said piston chamber; an annular piston mounted on said crank and adapted to contact with the cylindrical wall of said chamber at one point in its periphery during the rotation of said crank; and a radial blade rigidly secured to said piston extending through and completely filling said outlet passage.

2. In a device of the class described, the combination with a casing having a cylin-

drical piston chamber and inlet and outlet compartments communicating therewith and separated only by a line of wall; of a crank revoluble in said piston chamber; an annular piston mounted on said crank and adapted to contact with the cylindrical wall of said chamber at one point in its periphery during the rotation of said crank; and a radial blade rigidly secured to said piston separating the inlet passage from the outlet passage and extending into a slot formed in the cylindrical wall of said piston chamber, the walls of said slot having curved surfaces with which both sides of said blade contact simultaneously during its reciprocating and oscillating movement.

3. In a device of the class described, the combination with a casing having a cylindrical piston chamber, an inlet thereto, and an outlet compartment communicating therewith by means of a passage immediately adjacent to said inlet and separated therefrom only by a line of cylindrical wall of the said piston chamber; of a crank revoluble in said piston chamber; an annular piston mounted on said crank and adapted to contact at one point on its periphery with the cylindrical wall of said chamber during the rotation of said crank; and a radial blade rigidly secured to said piston and extending through and completely filling the passage to said outlet compartment.

4. In a device of the class described, the combination with a casing having a cylindrical piston chamber, an inlet thereto, and an outlet compartment communicating therewith by means of a walled passage immediately adjacent to said inlet and separated therefrom only by a line of cylindrical wall of the said piston chamber; of a crank revoluble in said piston chamber; an annular piston mounted on said crank and

adapted to contact at one point on its periphery with the cylindrical wall of said chamber during the rotation of said crank; and a radial blade secured to said piston and extending through and completely filling at its inner end the passage to said outlet compartment, said blade having a groove in one face the inner end of which is considerably removed from the periphery of said piston while the opposite end communicates with said outlet compartment during a portion of the movement of said piston.

5. In a device of the class described, the combination with a casing having a cylindrical piston chamber, an inlet thereto, and an outlet compartment communicating therewith by means of a walled passage immediately adjacent to said inlet and separated therefrom only by a line of cylindrical wall of the said piston chamber; of a crank revoluble in said piston chamber; an annular piston mounted on said crank and adapted to contact at one point on its periphery with the cylindrical wall of said chamber during the rotation of said crank; and a radial blade secured to said piston and extending through and completely filling the passage to said outlet compartment, said blade having an outlet passage in one face thereof extending from a point considerably removed from the periphery of said piston and adapted to be uncovered during a portion of the cycle of said crank to permit a discharge from the piston chamber into said outlet compartment.

Signed my me at 4 Post Office Sq., Boston, Mass., this 29th day of July 1910.

JUSTUS R. KINNEY.

Witnesses:

EDNA C. CLEVELAND,
WALTER E. LOMBARD.