

No. 724,816.

PATENTED APR. 7, 1903.

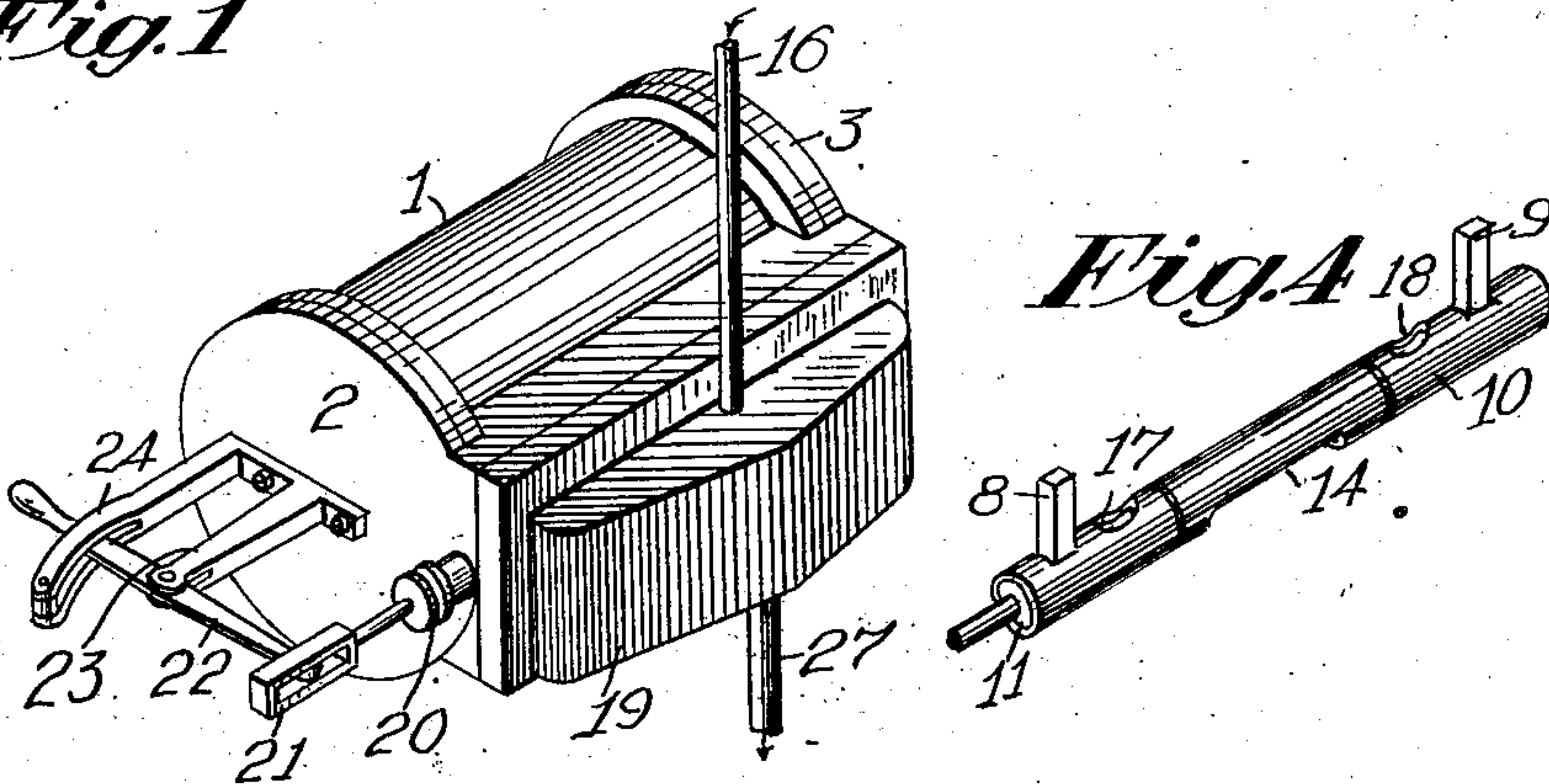
H. G. COUSTILLAC, JR.

STEAM ENGINE.

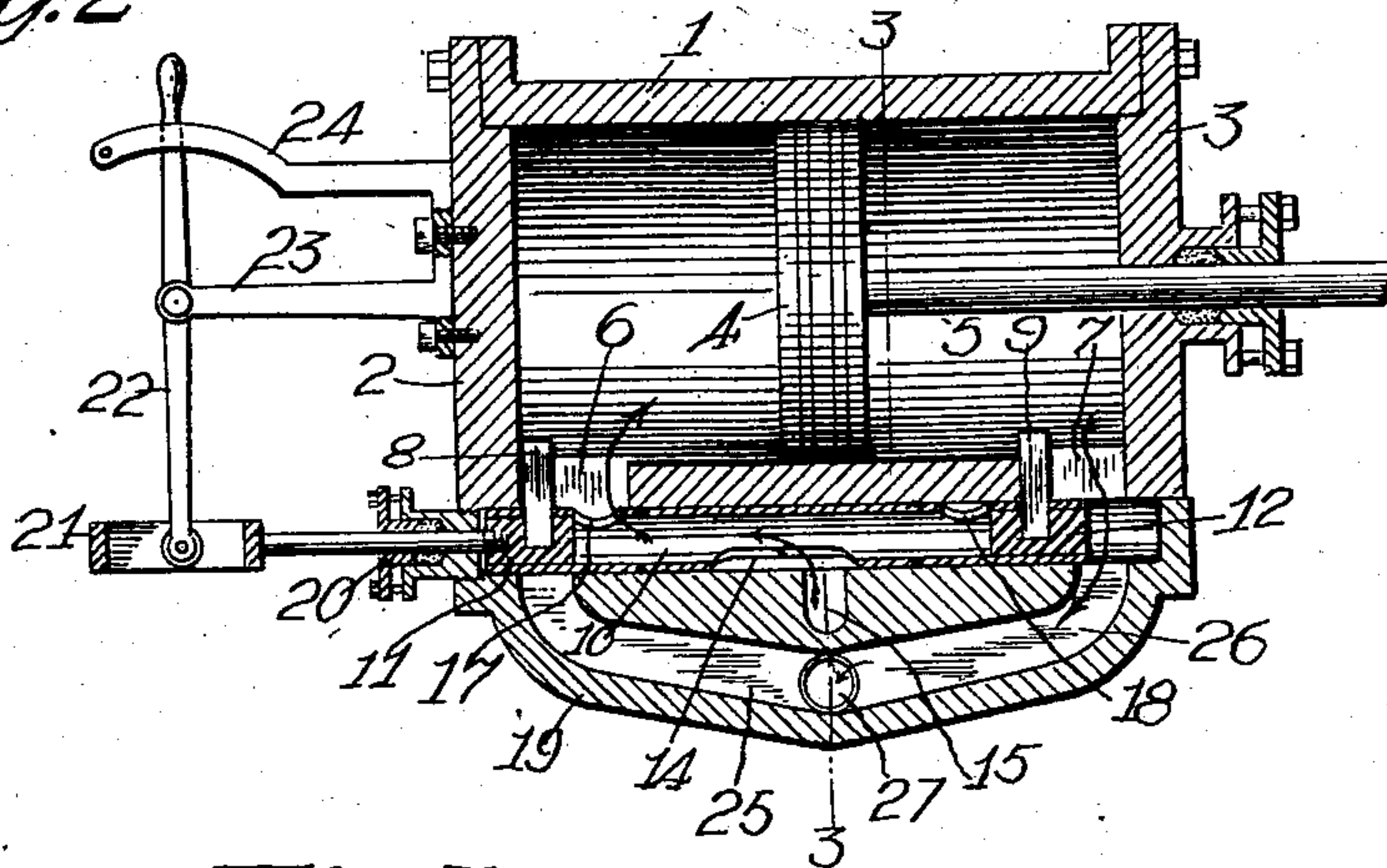
APPLICATION FILED DEC. 19, 1902.

NO MODEL.

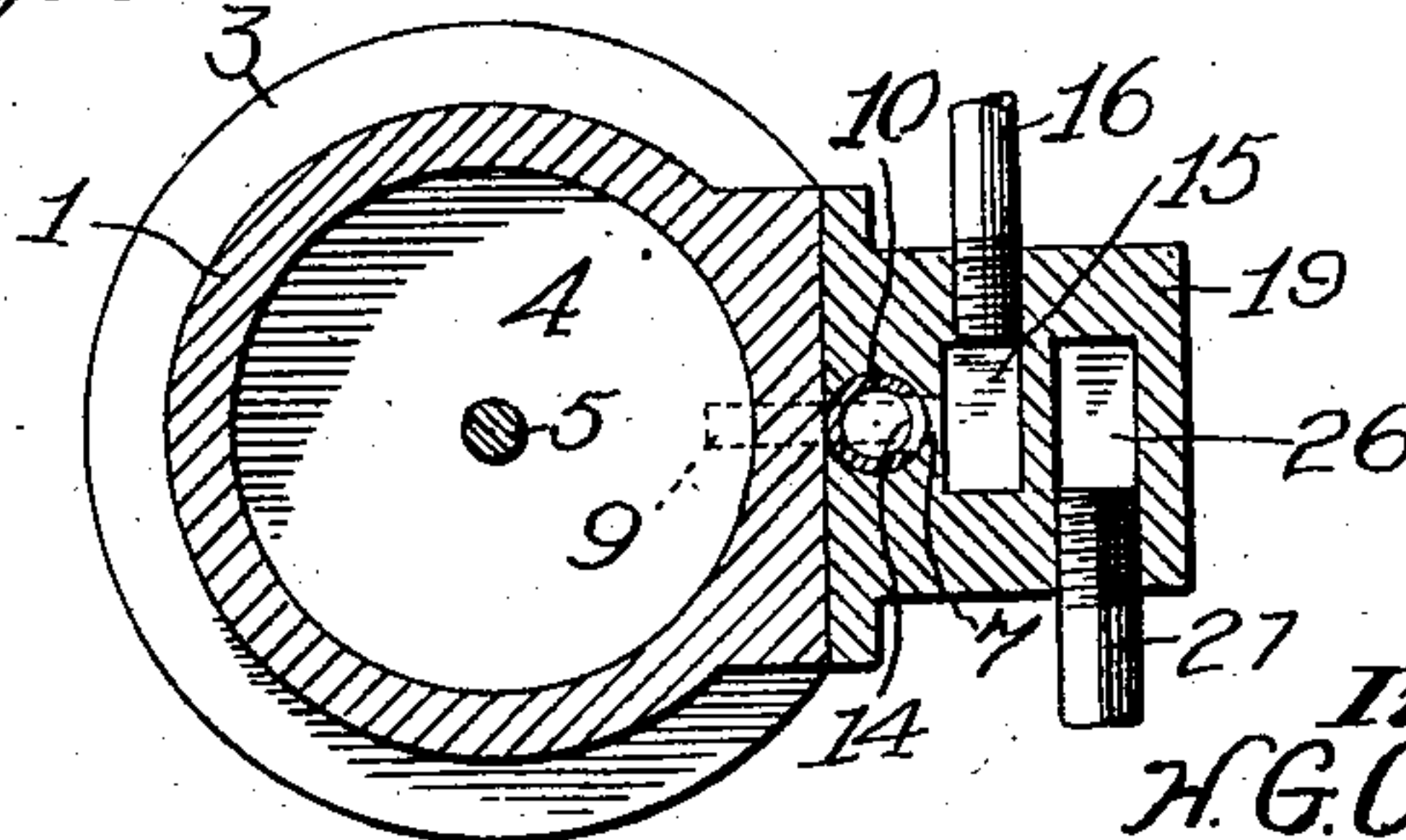
*Fig. 1*



*Fig. 2*



*Fig. 3*



Witnesses:  
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# UNITED STATES PATENT OFFICE.

HENRI G. COUSTILLAC, JR., OF BRADDOCK, PENNSYLVANIA.

## STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 724,816, dated April 7, 1903.

Application filed December 19, 1902. Serial No. 135,896. (No model.)

*To all whom it may concern:*

Be it known that I, HENRI G. COUSTILLAC, Jr., a citizen of the United States of America, residing at Braddock, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Steam-Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in steam-engines, and has for its main object to simplify the construction and provide a cheap, simple, and effective engine with novel valve mechanism  
15 and few parts to become out of order.

A further object of the invention is to construct an engine with a slide-valve which is actuated to shift the same, so as to alternately admit steam to opposite ends of the  
20 cylinder by the engagement of the piston with pins carried by the slide-valve, dispensing with the connecting-rod with the slide-valve.

With the above and other objects in view the invention resides in the novel construction, combination, and arrangements of parts  
25 to be hereinafter more specifically described and then particularly pointed out in the appended claims, and in describing the invention in detail reference will be had to the accompanying drawings, forming a part of this  
30 specification, and wherein like numerals of reference will be employed to indicate like parts throughout the different views, in which—

35 Figure 1 is a detail perspective view of an engine-cylinder and the valve-casing constructed in accordance with my invention. Fig. 2 is a central longitudinal sectional view of the same. Fig. 3 is a transverse vertical  
40 sectional view taken on the line 3 3 of Fig. 2. Fig. 4 is a detached detail perspective view of the slide-valve.

In the drawings, 1 indicates the cylinder; 2 3, the heads thereof; 4, the piston, and 5  
45 the piston-rod, working through a stuffing-box of approved form in the head 3. One wall of the cylinder is provided adjacent to the heads 2 3 with ports 6 7, which receive  
50 pins 8 and 9, carried by the slide-valve, said pins projecting some distance through said slots or ports, whereby they will be engaged by the piston 4 in its reciprocation to actuate

the valve. This slide-valve, which is cylindrical in form, embodies the hollow body portion 10 and solid ends 11 and 12, respectively, 55 forming the valves to open and close ports 7 and 8. The valve ends 11 and 12 carry the pins 8 and 9, and the hollow body portion is provided with a cut-away portion 14 in its underneath side, whereby the steam from the  
60 port 15, communicating with the inlet-pipe 16, may enter the said hollow body of the valve. The hollow body portion of the valve is provided in its upper face near each solid valve end with ports 17 18, respectively, whereby 65 the steam is permitted to pass from the hollow body of the slide-valve into the ports 6 and 7 and into the respective ends of the cylinder 1. By making the valve-body cylindrical it will be noted that packing-rings may readily 70 be placed thereon in event of the body becoming worn from use. This valve is inserted into the valve-casing 19 through an opening in the head 2 of the cylinder and this opening then closed by a stuffing-box 20, threaded into 75 the same. A rod extends through this stuffing-box and connects with the valve 11, said rod carrying an open link 21 on its outer end to receive the end of the reversing-lever 22, that is pivoted to a bracket 23, connected to 80 the head 3 and having a slotted arm 24 to receive the upper or outer end of the lever. The valve-casing 19 is provided with ports 25 and 26, communicating with the exhaust 27 and alternately communicating with the ports 85 6 and 7.

In operation, when steam is admitted through the hollow valve-body and passes through port 18 and through port 7 into the front end of the cylinder, the piston is 90 forced toward the other end of the cylinder and as it approaches the end of its travel engages with pin 8 and shifts the valve, so as to cause the valve end 12 to close port 7 and the valve end 11 to be moved over, so as to open 95 port 6, the steam in front of the cylinder-piston now exhausting through port 7, port 26, and exhaust 27 and live steam being admitted through port 17, port 6, into the rear of the piston to propel the same forwardly. To 100 reverse the engine, the valve is forced in the opposite direction by forcing link 21 inwardly, so that steam will first be admitted to the opposite end of the cylinder. Should the



valve become worn, it will be noted that packing-rings may readily be placed upon the cylindrical valve-body, the latter being readily removable from the valve-casing by removing threaded stuffing-box 21.

While I have herein shown and described the invention in detail, yet it will be evident that in the practice of the invention various slight changes may be made in the details of construction without departing from the general spirit of the invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a steam-engine, the combination with the cylinder and piston working therein, of inlet-ports in the wall of the cylinder adjacent the heads thereof, a cylindrical slide-valve embodying a hollow intermediate portion and solid valve ends, pins carried by said valve ends and extending into the ports in the cylinder-wall to be engaged by the piston,

and exhaust-ports in the casing of the slide-valve, substantially as described.

2. In a steam-engine the combination with a cylinder provided with elongated ports in one wall, and the piston working in the cylinder, of a valve-slide having a hollow cylindrical body portion, exhaust-ports in the valve-slide casing in alinement with the ports of the cylinder, said valve-slide being formed on one side adjacent each end with an opening and a central opening on the opposite side, solid ends arranged in the ends of the slide-valve, and pins projecting through the body portion of the valve and engaging the ends thereof, substantially as described.

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

HENRI G. COUSTILLAC, JR.

Witnesses:

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