

W. VON PITTLER.
 ROTARY ENGINE.
 APPLICATION FILED MAY 4, 1910.

990,163.

Patented Apr. 18, 1911.

Fig. 1

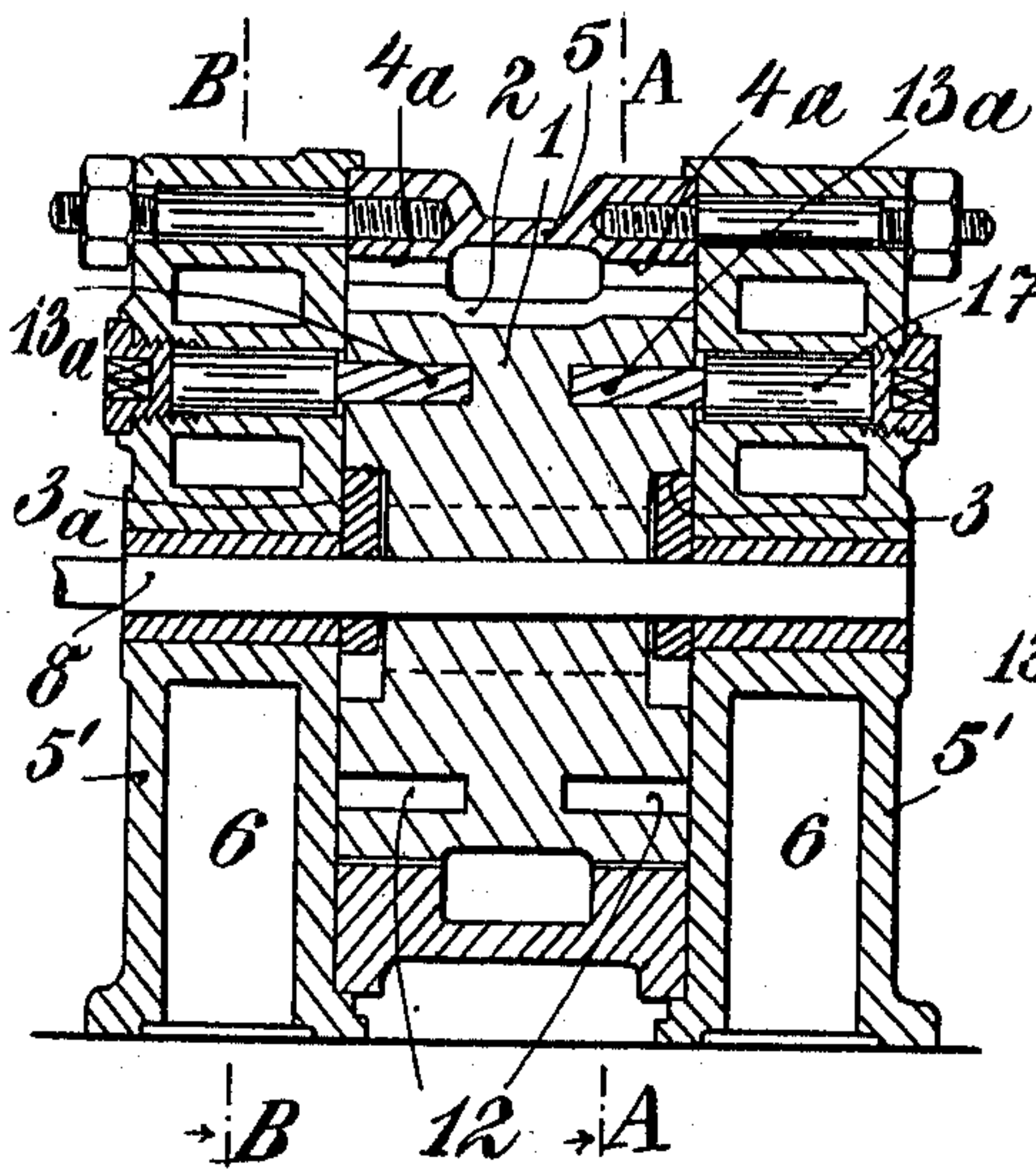


Fig. 2

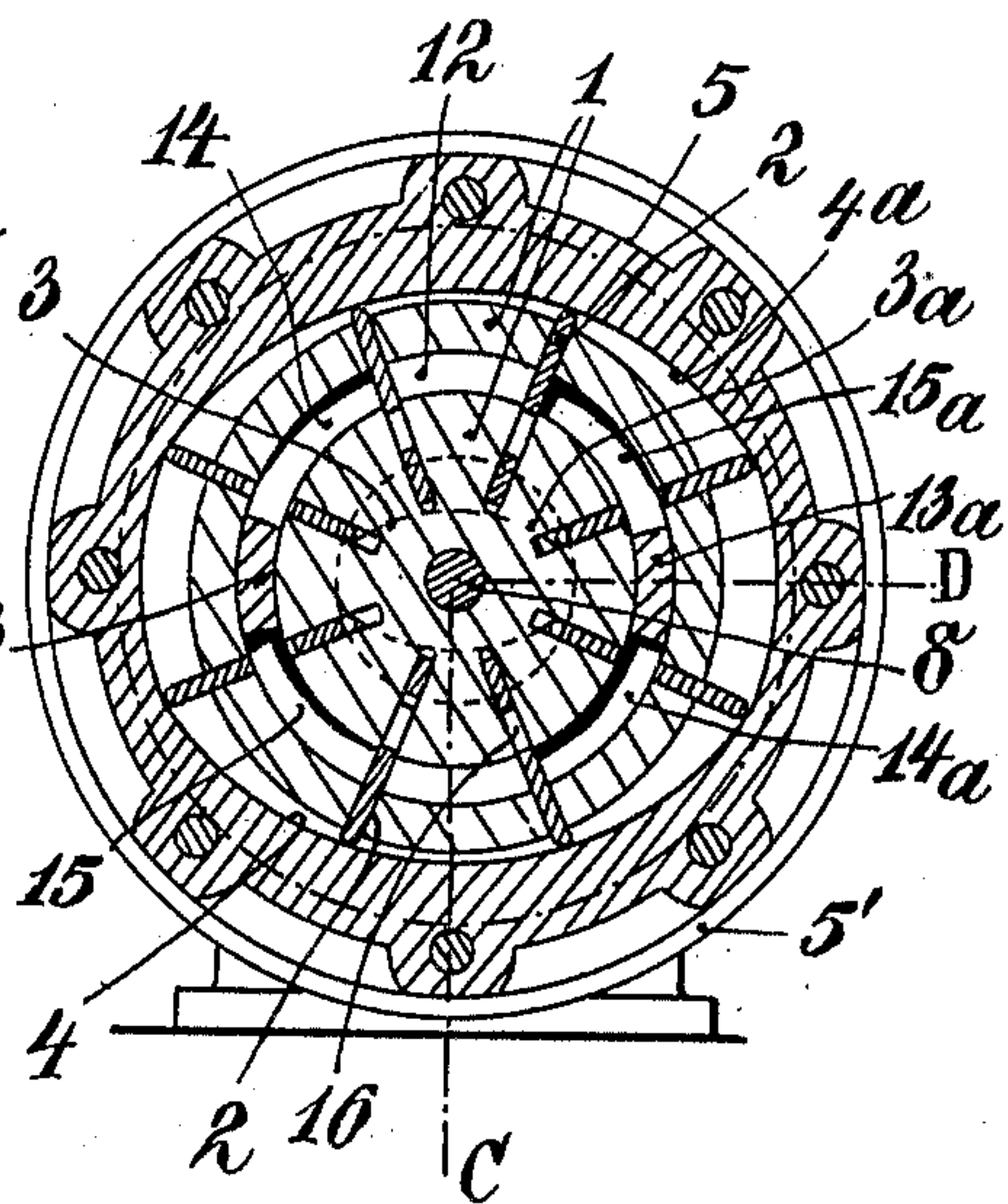
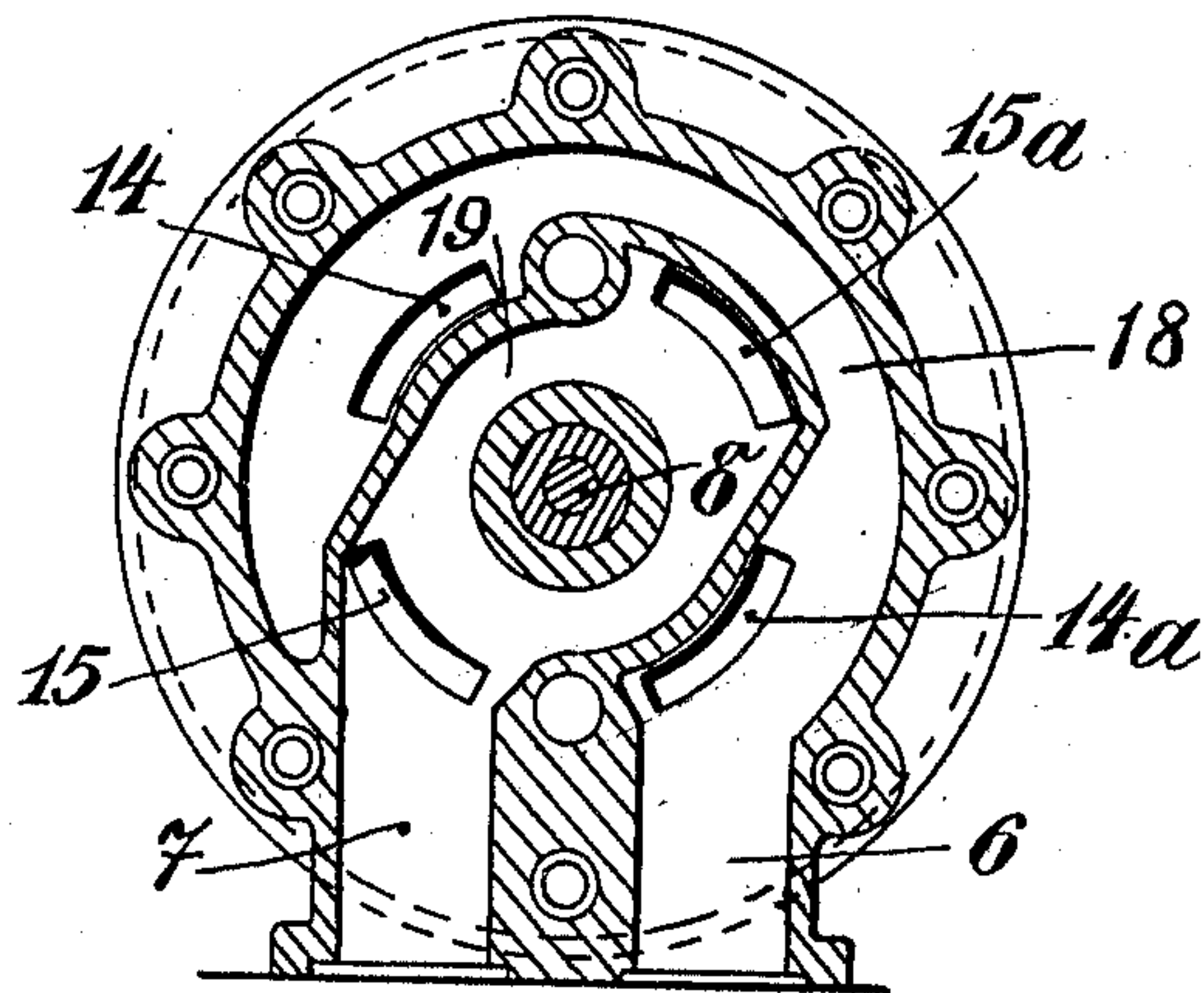


Fig. 3



Witnesses
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UNITED STATES PATENT OFFICE.

WILHELM VON PITTLER, OF LONDON, ENGLAND.

ROTARY ENGINE.

990,163.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed May 4, 1910. Serial No. 559,366.

To all whom it may concern:

Be it known that I, WILHELM VON PITTLER, engineer, a subject of the King of Prussia, residing at London, England, have invented certain new and useful Improvements in Rotary Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The present invention relates to rotary engines of the kind described in the U. S. Patent No. 894391 and has for its object to produce an engine with an increased output when working as a pump or an increased capacity when working as a motor, a practically complete balancing of the pressures on the bearings being simultaneously obtained. To this end two or more abutments are arranged to engage into each circular groove of the piston drum at equal circumferential distances from each other and correspondingly the guide surfaces for the vanes are provided with a plurality of cams, so that the pistons are reciprocated more than once during one revolution of the drum.

In the accompanying drawing a constructional form of the invention with radial movement of the vanes is exemplified, Figure 1 being a longitudinal section along the broken line C—D in Fig. 2, Fig. 2 a transverse section along A—A in Fig. 1, Fig. 3 a section along B—B in Fig. 1.

In the casing 5 the drum 1 is co-axially fitted, a circular groove 12 being cut in each of the end-surfaces of said drum. Into each of these grooves 12 engage two abutments 13, 13^a arranged diametrically opposite each other and secured to the heads 5' of the casing 5 by means of bolts 17. In front of each abutment 13, 13^a, seen in the direction of rotation of the engine, are arranged exhaust or delivery ports 15, 15^a and behind each abutment an admission or suction port 14, 14^a. Furthermore radial grooves are cut into the drum over its whole length, in which the vanes 2 having notches 16 are arranged radially movable but closely fitting.

When the drum 1 fitted on the shaft 8 revolves, the vanes 2 are carried around. They thereby will slide with their outer ends along the guide surfaces 4, 4^a of the casing

5 and with the inside ends along cam surfaces 3, 3^a of two stationary double cams arranged in hollow spaces in the central part of the drum. They are thereby guided in such a manner, that when they pass the abutments 13, 13^a their notches 16 register with the grooves 12 so that the vanes can pass the abutments, while at other times they close the grooves 12 with their solid part. The admission and exhaust ports 14, 14^a and 15, 15^a connected with the admission and exhaust nozzles 6 and 7 respectively are arranged in the hollow heads 5' in the manner shown in Fig. 3, the ports on one side of the shaft being connected to those on the other by channels 18, 19 provided in the heads 5' so that both exhaust ports 15 and 15^a at one side of the machine discharge into the same exhaust nozzle 7, and both inlet ports at one side of the machine are supplied from the same inlet nozzle 6.

Two or more concentric grooves 12 could be provided in each of the end surfaces of the piston drum. With an axial arrangement any number of grooves can be arranged accordingly in the peripheral surface of the drum.

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

1. In a rotary engine the combination of a drum, circular grooves in said drum, radial grooves crossing said circular grooves, a plurality of abutments engaging into each of said circular grooves, vanes in said radial grooves, each vane having a slot corresponding to each circular groove, and guide surfaces having a plurality of cams corresponding to the number of abutments engaging into each circular groove, for reciprocating the vanes so as to bring their slots into register with the grooves when passing the abutments.

2. In a rotary engine the combination of a drum, a circular groove in one end surface of said drum, radial grooves crossing said circular groove, a plurality of abutments engaging into said circular groove, a vane radially movable in each radial groove, each vane having a slot corresponding to the circular groove, guide surfaces for said vane, said guide surfaces having a plurality of cams corresponding to the number of abutments engaging into the circular groove, for reciprocating the vanes.

3. In a rotary engine the combination of

a drum, circular grooves in both end surfaces of said drum, radial grooves crossing said circular grooves, a plurality of abutments engaging into each of said circular
 5 grooves, vanes radially movable in said radial grooves, said vanes having slots corresponding to the circular grooves, guide surfaces for said vanes, said guide surfaces having a plurality of cams corresponding
 10 to the number of abutments engaging into each circular groove, for reciprocating the vanes.

4. In a rotary engine the combination of a drum, circular grooves in both end surfaces of said drum, radial grooves crossing
 15 said circular grooves, said radial grooves being cut into the drum over its whole length, abutments engaging into said circular grooves, vanes radially movable in
 20 said radial grooves, said vanes having slots corresponding to the circular grooves and guide surfaces for reciprocating the vanes.

5. In a rotary engine the combination of a drum, circular grooves in both end surfaces of said drum, radial grooves crossing
 25 said circular grooves, said radial grooves being cut into the drum over its whole length, a plurality of abutments engaging

into each of said circular grooves, vanes radially movable in said radial grooves, said
 30 vanes having slots corresponding to the circular grooves, guide surfaces for said vanes, said guide surfaces having a plurality of cams according to the number of abutments engaging into each circular groove, for re-
 35 ciprocating the vanes.

6. In a rotary engine the combination of a drum, a casing inclosing said drum, circular grooves in the end surfaces of said drum, radial grooves crossing said circular
 40 grooves, abutments engaging into said circular grooves, vanes radially movable in said radial grooves, said vanes having slots corresponding to the circular grooves, means for reciprocating said vanes, chan-
 45 nels provided in the heads of said casing, and admission and exhaust ports connecting said channels with the circular grooves of the drum.

In testimony that I claim the foregoing as
 50 my invention, I have signed my name in presence of two subscribing witnesses.

WILHELM VON PITTLER.

Witnesses:

PERCY E. MATTOCKS,

F. C. SMITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
 Washington, D. C."