

No. 865,206.

PATENTED SEPT. 3, 1907.

J. VAN B. RANCK.
ROTARY EXPLOSIVE ENGINE.
APPLICATION FILED JUNE 22, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

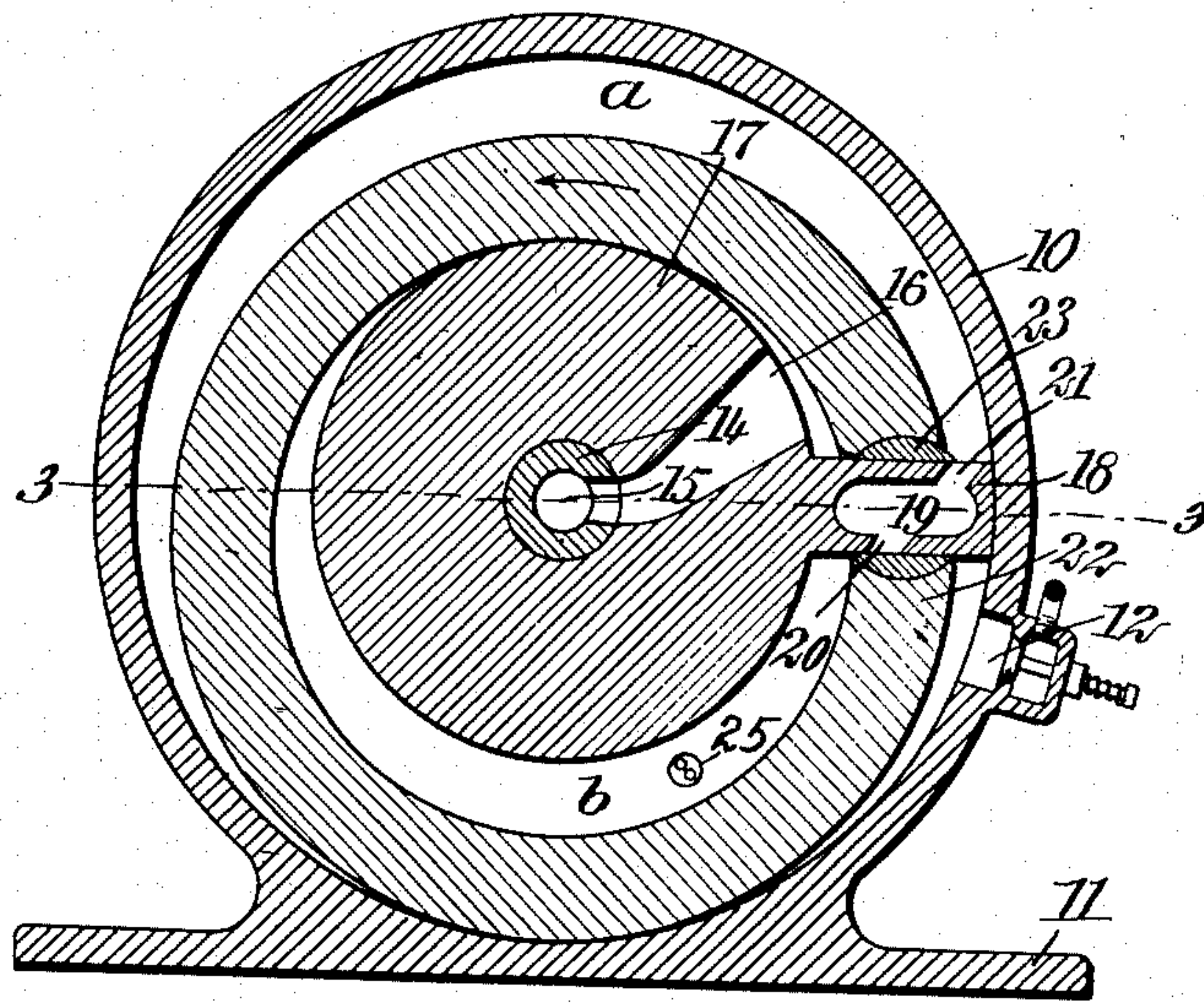
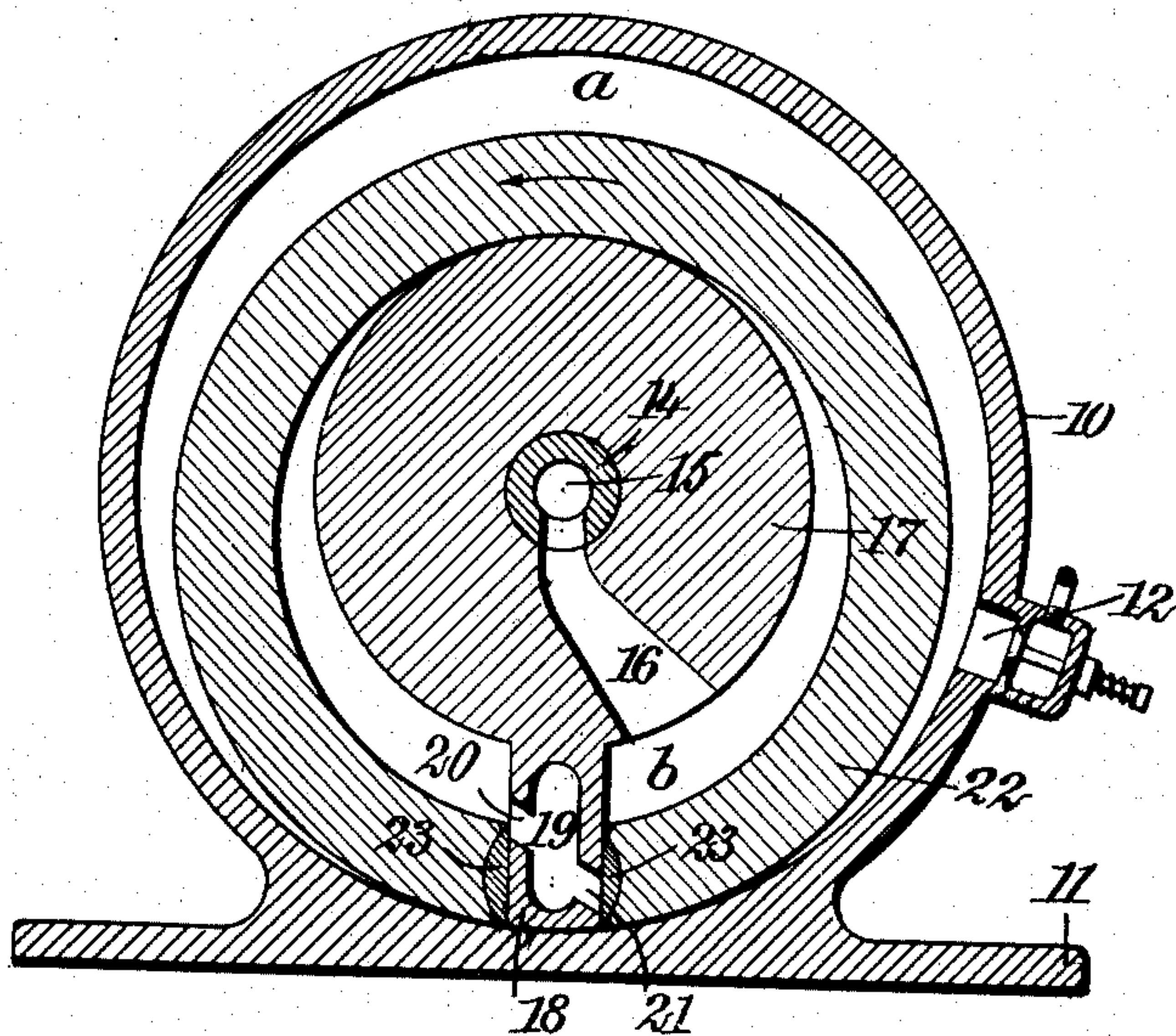


Fig. 2.



WITNESSES

Geo. H. Maylor
Frank B. Davis

INVENTOR

John V. B. Ranck
BY *Mum & Co*
ATTORNEYS

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2 SHEETS—SHEET 2.

Fig. 3.

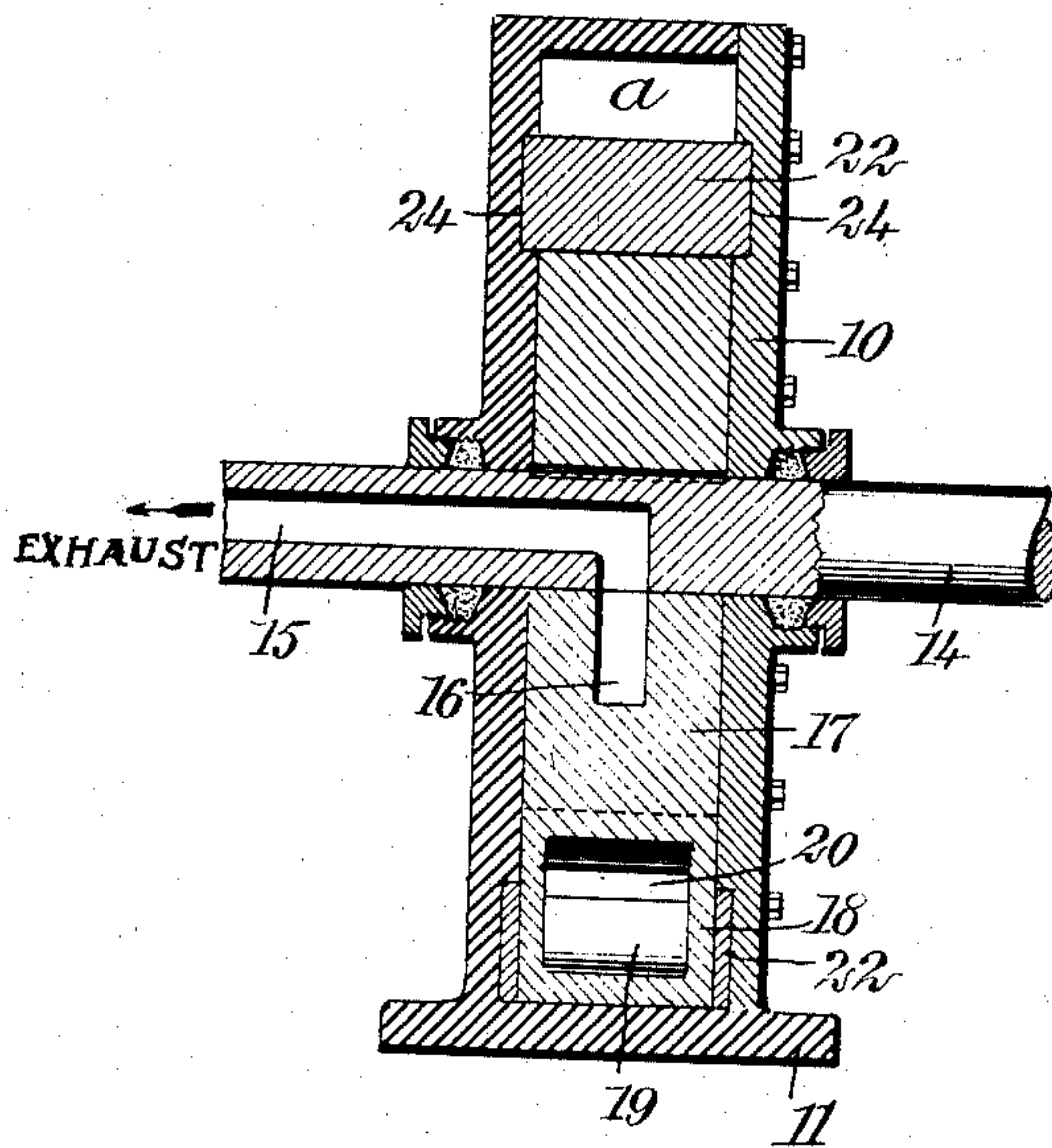
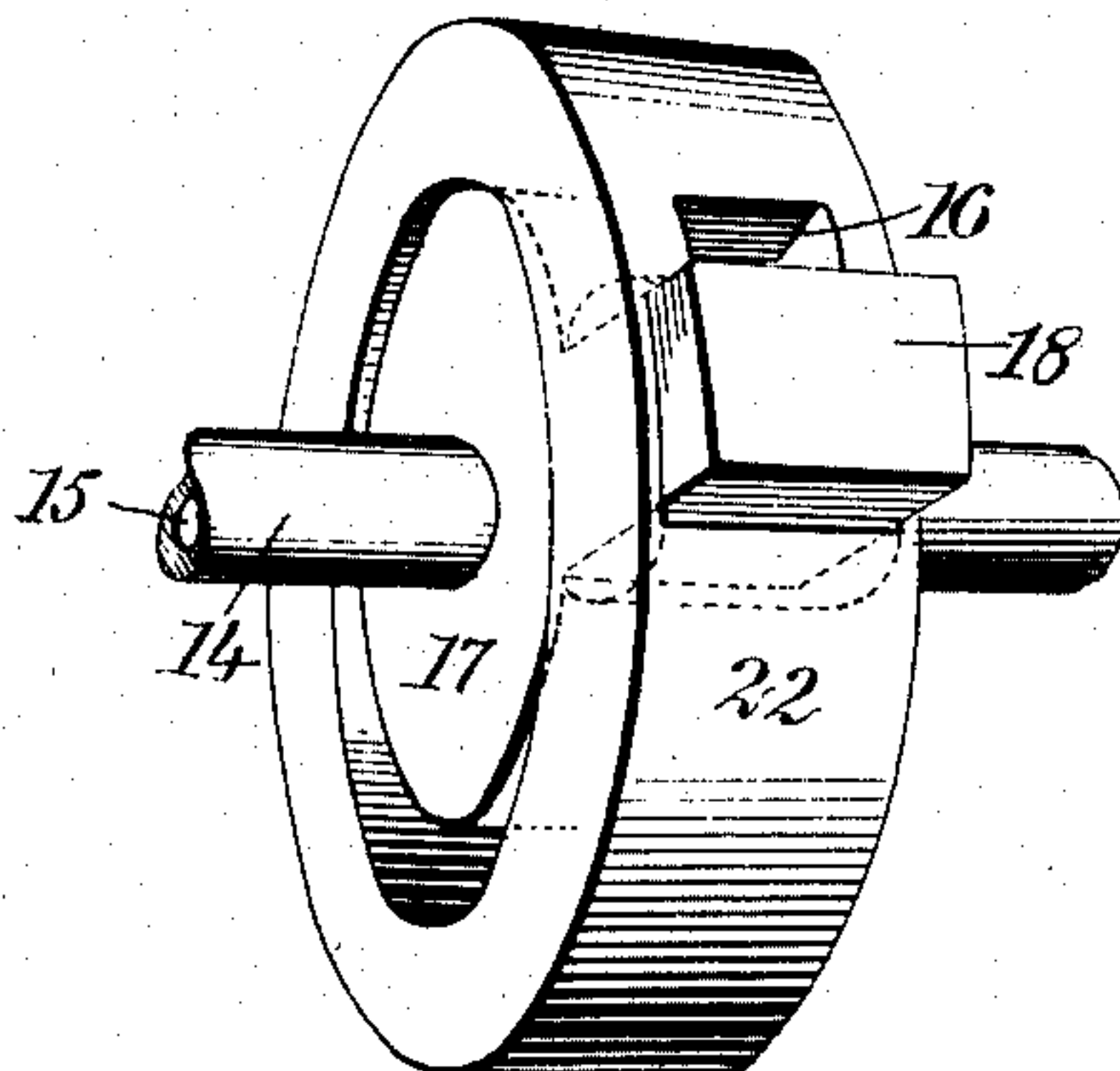


Fig. 4.



WITNESSES

Geo. H. Taylor

Amos Blum

INVENTOR

John V. B. Ranck

BY

Mum & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN VAN BUREN RANCK, OF CLEVELAND, OHIO.

ROTARY EXPLOSIVE-ENGINE.

No. 865,206.

Specification of Letters Patent.

Patented Sept. 3, 1907.

Application filed June 22, 1906. Serial No. 322,856.

To all whom it may concern:

Be it known that I, JOHN VAN BUREN RANCK, a citizen of the United States, and a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and Improved Rotary Explosive-Engine, of which the following is a full, clear, and exact description.

My invention relates to a rotary explosive engine in which two chambers are provided, the charge being drawn by suction into one chamber and therein compressed, and then transferred to the explosion or working chamber where it is ignited and expanded against the piston or equivalent part of the invention.

The invention resides in certain special features of construction and combinations of parts, and all will be fully set forth hereinafter and particularly pointed out in the claims.

Reference is to be had to the accompanying drawings which illustrate as an example the preferred form of my invention, in which drawings

Figure 1 is a cross section of the engine; Fig. 2 is a similar view showing the parts in a different position; Fig. 3 is a sectional view of the engine on the line 3—3 of Fig. 1; and Fig. 4 is a perspective view of the rotor.

The engine has a circular shell or casing 10 mounted on a suitable base 11, and provided with an admission port 12 which communicates with suitable means for forming or conducting the explosive mixture, which mixture passes the admission port into the engine.

14 indicates the shaft of the engine which is revolubly mounted in the center of the shell or casing 10, and provided with an exhaust passage 15 which communicates with a port 16 formed in the concentric element 17 of the rotor, which element is fastened on the shaft

14. Said concentric element 17 of the rotor has a radially projecting wing 18 formed with a chamber 19 and ports 20 and 21, said ports leading from the opposite sides of the wing to the chamber, and the port 20 being located adjacent to the inner end of the wing,

while the port 21 is located adjacent to the outer end thereof. Said wing passes loosely through the ring or annulus 22 of the rotor, and at each side of the wing within the annulus is a shoe 23 which makes fluid tight connection between the surface at these points, allowing, however, relative movement of the same.

The ring 22, as shown best in Fig. 3, is arranged to run in grooves 24 in the sides of the shell 10, and is eccentric to the shaft 14. It will thus be seen that I provide an outer or compression chamber *a* between the ring 22 and the shell or casing of the engine, and an inner or explosion chamber *b* in which the working fluid is ignited and expanded.

In the operation of the engine, the parts rotating in the direction of the arrows in Figs. 1 and 2: as the wing

passes the inlet port 12 the mixture is drawn into the compression chamber *a*, and as the movement of the rotor continues this mixture is compressed in the chamber 19 of the abutment 18, and then as the parts reach the position shown in Fig. 2 the port 20 is uncovered and the compressed charge is permitted to enter the working chamber *b* where said charge is ignited by any suitable form of igniter 25 and expanded against the abutment or wing to give an impulse to the engine, the products of combustion being exhausted through the port 16 and passage 15 by the subsequent rotation of the parts.

Having thus described the preferred form of my invention, what I actually claim and desire to secure by Letters Patent is:

1. A rotary explosive engine having a casing, a rotor comprising a central portion and a relatively movable annulus or ring surrounding the same, said parts forming an outer chamber and an inner chamber, one of said chambers adapted to serve as a compression chamber and the other of said chambers adapted to serve as a working chamber; a wing attached to the inner part of the rotor and extending radially through the ring or annulus, said wing having a chamber therein, and having ports adapted respectively to communicate with the compression and working chambers.

2. A rotary explosive engine having a casing, a rotor comprising a central portion and a relatively movable annulus or ring surrounding the same, said parts forming an outer chamber and an inner chamber, one of said chambers adapted to serve as a compression chamber and the other of said chambers adapted to serve as a working chamber; a wing attached to the inner part of the rotor and extending radially through the ring or annulus, said wing having a chamber therein, and having ports adapted respectively to communicate with the compression and working chambers, said shell or casing having an admission port therein, and the inner part of the rotor having an exhaust port passing out through the axis thereof.

3. A rotary explosive engine having a casing, a rotor comprising a central portion and a relatively movable annulus or ring surrounding the same, said parts forming an outer chamber and an inner chamber, one of said chambers adapted to serve as a compression chamber and the other of said chambers adapted to serve as a working chamber; a wing attached to the inner part of the rotor and extending radially through the ring or annulus, said wing having a chamber therein, and having ports adapted respectively to communicate with the compression and working chambers, said inner part of the rotor turning concentrically, and the ring or outer part of the rotor turning eccentrically to the casing.

4. A rotary explosive engine having a casing, a rotor comprising a central portion and a relatively movable annulus or ring surrounding the same, said parts forming an outer chamber and an inner chamber, one of said chambers adapted to serve as a compression chamber and the other of said chambers adapted to serve as a working chamber; a wing attached to the inner part of the rotor and extending radially through the ring or annulus, said wing having a chamber therein, and having ports adapted respectively to communicate with the compression and working chambers, said inner part of the rotor turning

concentrically, and the ring or outer part of the rotor turning eccentrically to the casing, and the side walls of the shell or chamber having eccentric guides therein receiving the edges of the ring.

- 5 5. A rotary explosive engine having an outer casing or shell, and a rotor therein, the rotor comprising an inner member and a relatively movable annulus or ring surrounding the same, said parts forming an outer chamber and an inner chamber, one of said chambers adapted to

serve as a compression chamber and the other of said 10 chambers adapted to serve as a working chamber; and means controlling fluid movement between said chambers.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN VAN BUREN RANCK.

Witnesses:

J. J. MOYNAHAN,

GLENN P. RODGERS.