

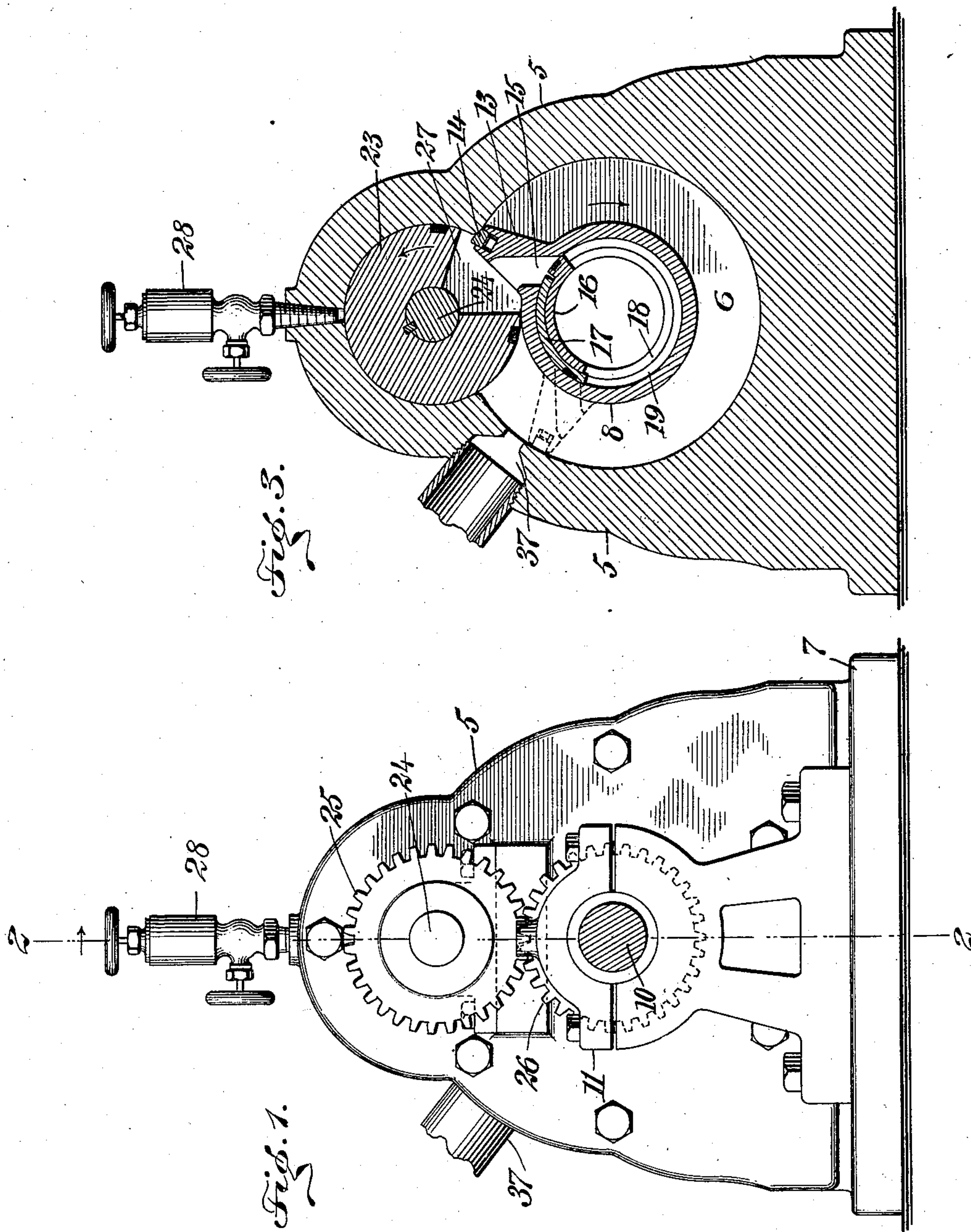
No. 865,964.

PATENTED SEPT. 10, 1907.

W. F. BLEECKER.  
ROTARY ENGINE.

APPLICATION FILED MAR. 17, 1906.

3 SHEETS—SHEET 1.



**WITNESSES:**

S. C. Abbott  
C. P. Ferguson

INVENTOR

*Warren F. Bleecker*

BY *Mum Co*

**ATTORNEYS**



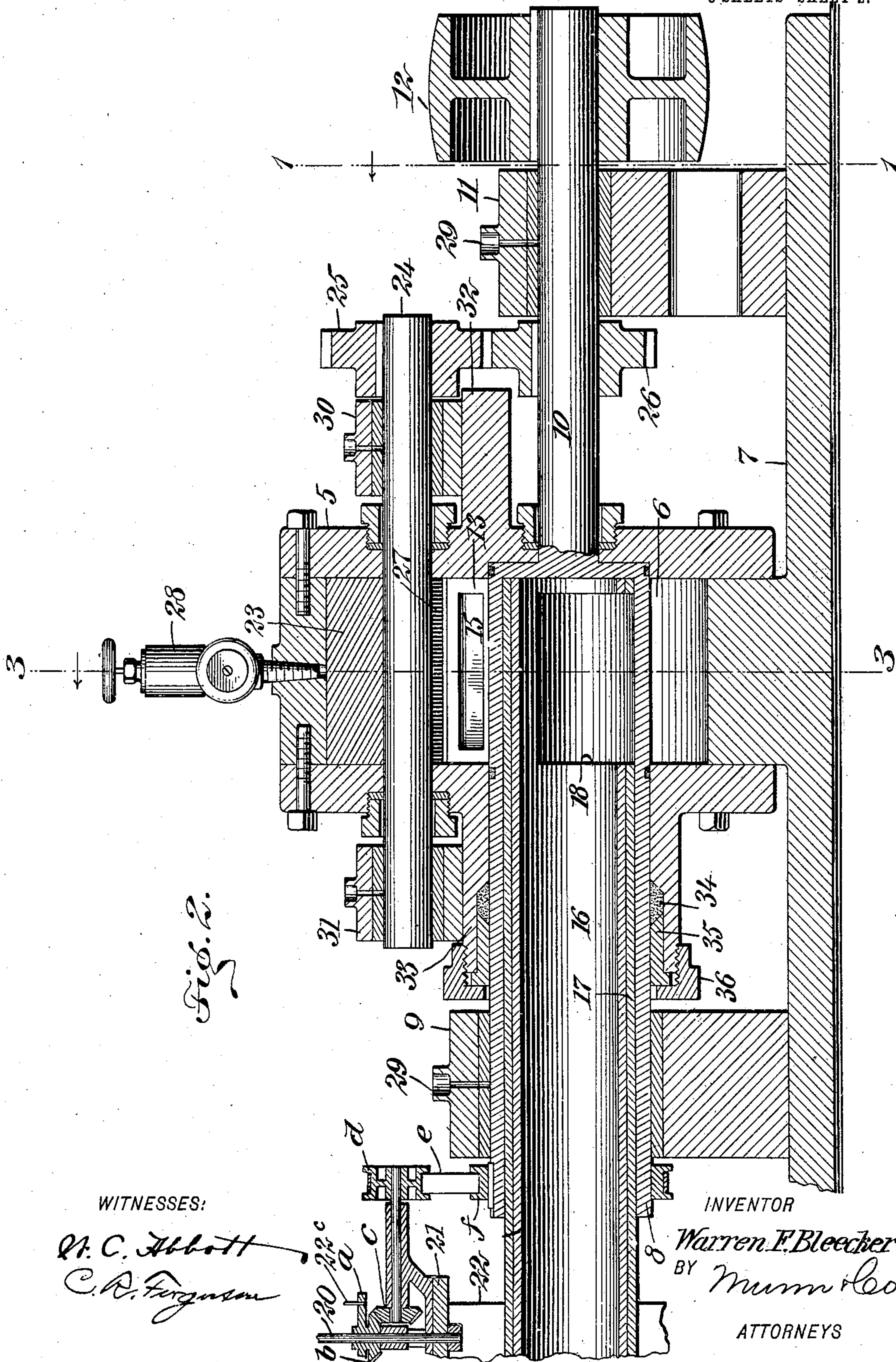
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

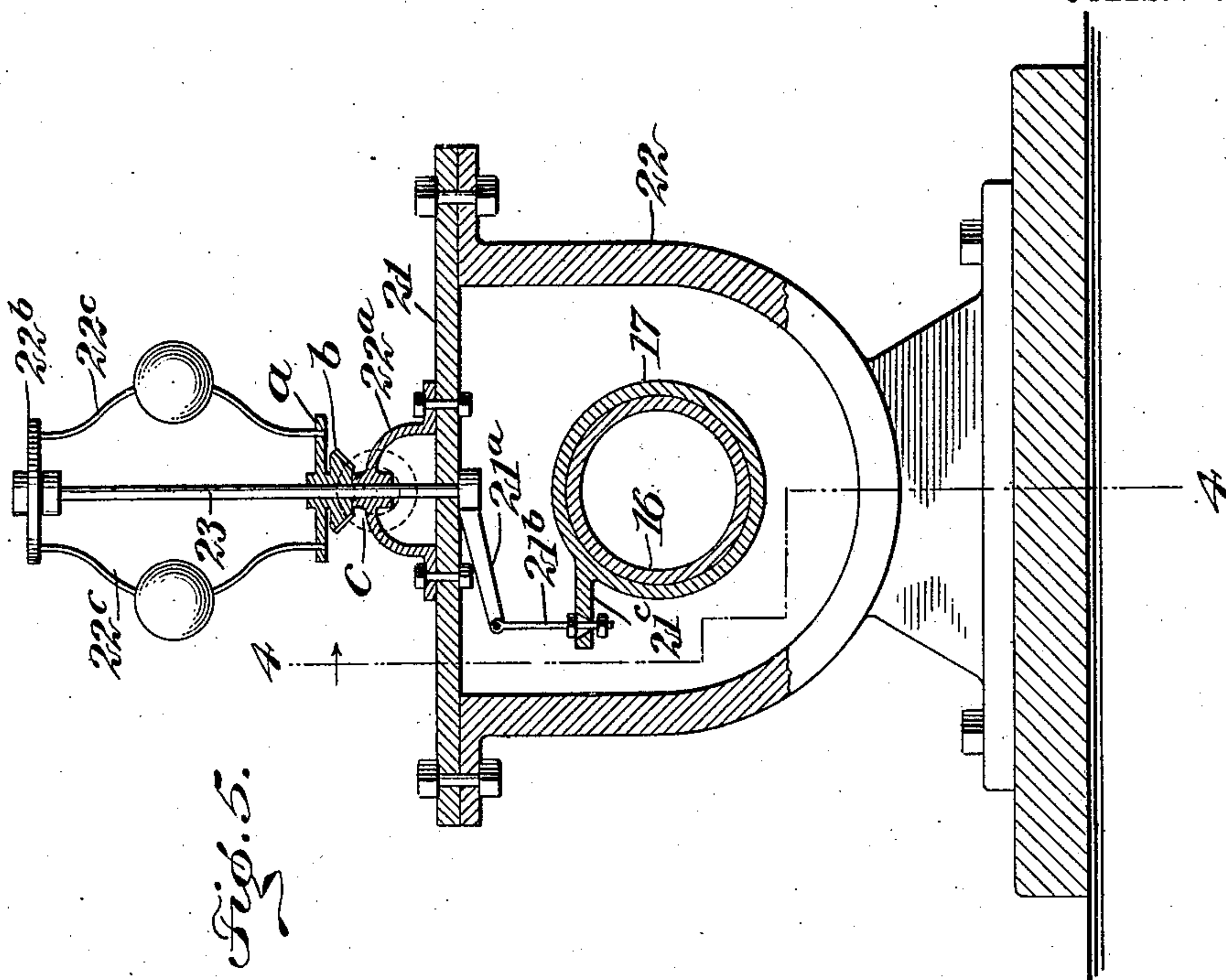


Fig. 5.

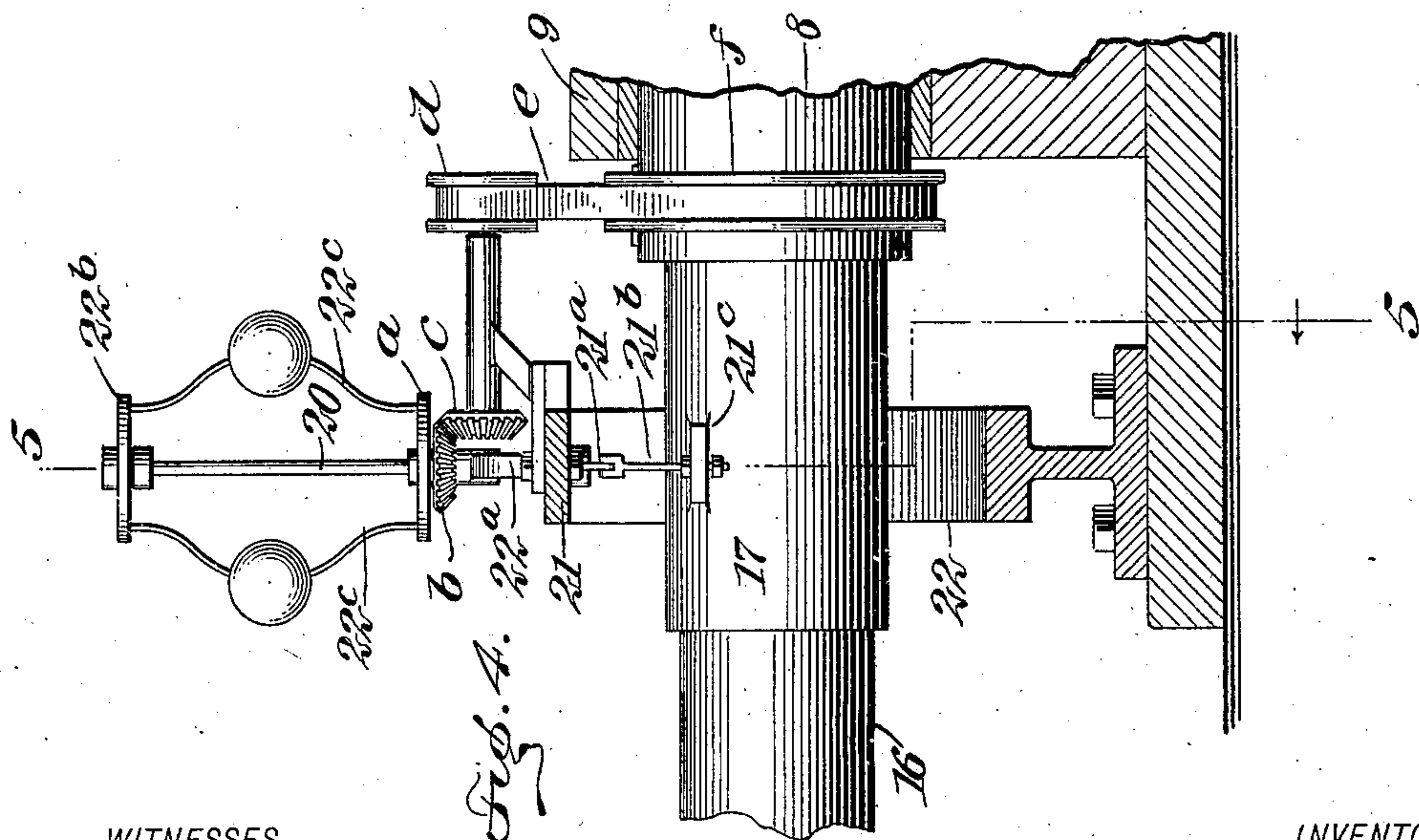


Fig. 4.

WITNESSES

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# UNITED STATES PATENT OFFICE.

WARREN FLOYD BLEECKER, OF VICTOR, COLORADO, ASSIGNOR OF ONE-THIRD TO FRED-  
ERICK G. BLEECKER, OF GRAND ISLAND, NEBRASKA, AND ONE-THIRD TO MARTIN C.  
BLEECKER, OF PUEBLO, COLORADO.

## ROTARY ENGINE.

No. 865,964.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed March 17, 1906. Serial No. 306,568.

*To all whom it may concern:*

Be it known that I, WARREN FLOYD BLEECKER, a citizen of the United States, and a resident of Victor, in the county of Teller and State of Colorado, have in-  
5 vented a new and Improved Rotary Engine, of which the following is a full, clear, and exact description.

This invention relates to improvements in rotary en-  
gines, the object being to provide an engine of this type,  
that will be simple in construction, having no parts  
10 liable to get out of order, and in which a high speed  
may be obtained with an economical use of motive  
agent.

I will describe a rotary engine embodying my inven-  
tion and then point out the novel features in the ap-  
15 pended claims.

Reference is to be had to the accompanying drawings  
forming a part of this specification, in which similar  
characters of reference indicate corresponding parts in  
all the figures.

20 Figure 1 is an elevation, partly in section, on the  
line 1—1 of Fig. 2, of an engine embodying my inven-  
tion; Fig. 2 is a section on the line 2—2 of Fig. 1; Fig.  
3 is a section on the line 3—3 of Fig. 2; Fig. 4 is a section  
on the line 4—4 of Fig. 5, showing a governor employed;  
25 and Fig. 5 is a section on the line 5—5 of Fig. 4.

The engine comprises a casing 5 having a steam cyl-  
inder or chamber 6, and this casing is mounted on a  
base 7. Extended through the casing is a shaft con-  
sisting of a tubular member 8 having a bearing in a  
30 pillow-post 9, and a solid portion 10 having its bearing  
in a pillow-post 11; and also on this solid portion is a  
band-wheel 12. The tubular portion of the shaft with-  
in the steam chamber is provided with a radial wing 13,  
in the outer edge of which is a packing strip 14 designed  
35 to engage with the inner surface of the steam chamber,  
and at one side of the wing 13 is a port 15, for the ad-  
mission of steam or other motive agent to bear upon the  
said wing.

Arranged within the tubular portion of the shaft are  
40 tubes 16, 17, and through the inner fixed tube 16 the  
steam or other motive agent is designed to pass, and  
thence outward through a port 18 formed in said inner  
tube. The outer tube 17 is also provided with an open-  
ing or port 19, and this outer tube is designed to regu-  
45 late the opening or port 18, so that the steam or other  
motive agent may be cut off at any desired time. As  
a means for regulating the size of opening of the  
ports, I employ a governor for imparting rotary motion  
to the tube 17. The said governor, as here shown, con-  
50 sists of a rod 20, movable through a plate 21 on a yoke

22, mounted on the engine-base, the lower end of said  
rod having an arm 21<sup>a</sup>, connected by a link 21<sup>b</sup> to a lug  
21<sup>c</sup> on the tube 17. The rod passes loosely through a  
strap 22<sup>a</sup> to connection with a plate 22<sup>b</sup>, to which the  
upper ends of spring-arms 22<sup>c</sup> are attached, the lower 55  
ends of said arms being secured to a plate *a*, which is  
secured to a bevel pinion *b*, meshing with a pinion *c*,  
and on the shaft of the pinion *c* is a pulley *d*, from which  
a band *e* leads to a band-wheel *f* on the shaft 8.

In the upper portion of the casing is a rotary abut- 60  
ment 23, the said abutment being mounted on a shaft  
24, on which is a gear-wheel 25, meshing with a gear-  
wheel 26, on the section 10 of the main shaft. These  
gear-wheels are of equal size, so as to time the move-  
ments between the abutment of the wing on the main 65  
shaft and, as will be noted in the drawings, the abut-  
ment 23 is provided at one side with an opening 27,  
to permit the passing therethrough of the wing 13. The  
rotary abutment is lubricated from an oil-cup 28, and  
oil-cups 29 are arranged on the pillow-standards 9 and 70  
11. The shaft 24 has its bearings in blocks 30, 31,  
mounted on extensions 32, 33, from the opposite sides  
of the casing, and to prevent the escape of motive agent  
around the shaft member 17, I employ a packing 34,  
engaged by a ring 35, which is pressed into position by 75  
means of a screw-collar 36, engaging with a thread  
formed on said extension 33.

In operation, the steam or other motive agent passes  
through the tube 16 and out through the port 18, the  
opening of said port, as before mentioned, being regu- 80  
lated by the governor. As the motive agent passes  
through the port 15 it will act expansively upon the  
wing 13, the block 23 serving as an abutment, and upon  
nearly reaching the limit of the rotary movement, the  
motive agent will exhaust through the port 37. 85

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

A rotary engine comprising a motive agent casing, an  
abutment therein, a tubular shaft extended into the casing  
and having a port, a radial wing at one side of said port, 90  
a tube extended into the hollow shaft, and having a port,  
a ported tube having rotative movement on the first-  
named tube, a rod, an arm on said rod, a link connection  
between said arm and the rotary tube, a governor for  
causing movements of said rod, and a driving connection 95  
between the governor and the shaft.

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

WARREN FLOYD BLEECKER.

Witnesses:

JAMES LEVELL,

CHARLIE ERWIN.