

P. P. PIERCE.  
TURBINE.

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1,058,790.

Patented Apr. 15, 1913.

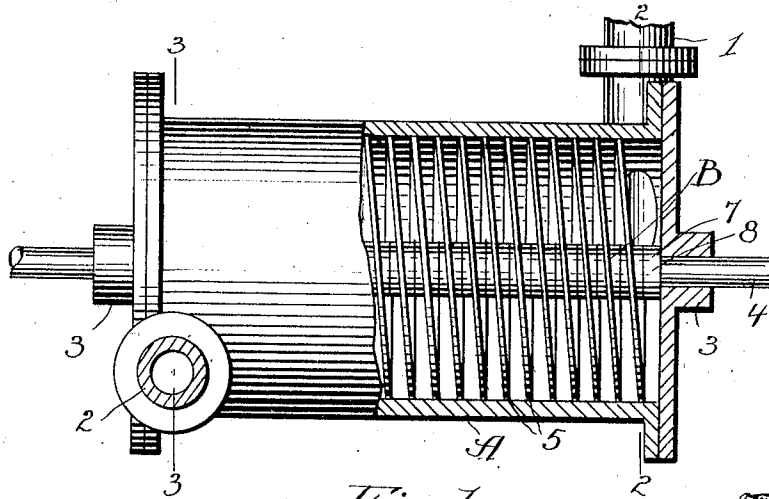


*Fig. 1.*

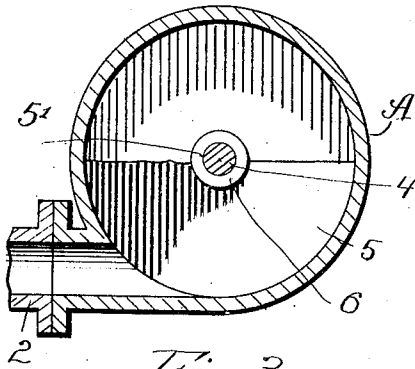


*Fig. 3.*

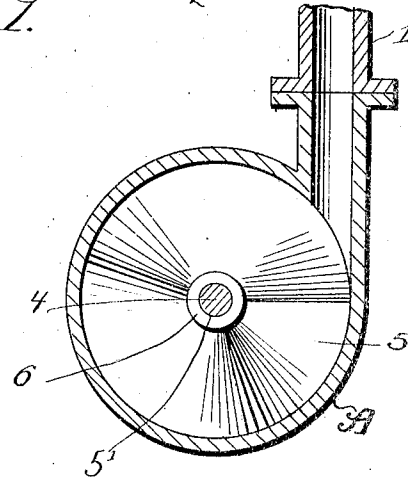


*Fig. 2.*

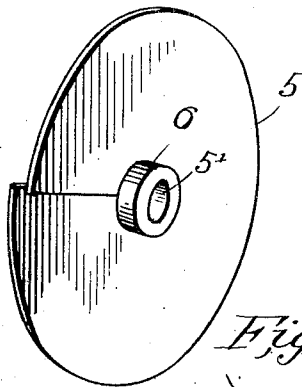


*Fig. 4.* P. P. Pierce

Witnesses

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# UNITED STATES PATENT OFFICE.

PAUL P. PIERCE, OF CASTILE, NEW YORK.

## TURBINE.

1,058,790.

Specification of Letters Patent. Patented Apr. 15, 1913.

Application filed October 23, 1912. Serial No. 727,390.

*To all whom it may concern:*

Be it known that I, PAUL P. PIERCE, a citizen of the United States, residing at Castile, in the county of Wyoming, State of New York, have invented certain new and useful Improvements in Turbines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain novel and useful improvements in turbines and has particular application of an engine of the class specified designed to employ steam or gas as a motive fluid, although of course I wish it to be understood that any fluid may be employed in its operation.

In carrying out my invention, it is my purpose to provide an engine embodying among other features a rotor which is in the nature of a spiral or screw so constructed and mounted within the casing that the steam entering one end of the latter will traverse the spiral rotor spending its direct energy on the latter the engine exhausting at the opposite end from the motive fluid intake.

Still a further object of my invention is to provide a rotary engine which will embody the desired features of simplicity, economy and efficiency and which may be operated to accomplish a maximum amount of work at a minimum of cost.

With the above recited objects and others of a similar nature in view, my invention consists in the construction, combination and arrangements of parts set forth in and falling within the scope of the appended claims.

In the accompanying drawings: Figure 1 is a vertical longitudinal sectional view taken through an engine embodying my invention, some of the parts being shown in elevation. Fig. 2 is a transverse vertical sectional view taken on the line 2—2 of Fig. 1. Fig. 3 is a similar view taken on the line 3—3 of Fig. 1. Fig. 4 is a detail perspective view of one of the sections composing the spiral rotor.

In the present instance I have shown and described an engine which is designed to employ steam as the motive fluid.

Referring now to the accompanying drawings in detail, the letter A designates the steam cylinder or casing which may be of any approved type and is provided with

the inlet pipe 1 at one end thereof and the outlet pipe 2 at the opposite end thereof, the intake or inlet leading preferably in from the top of the cylinder, while the exhaust or outlet pipe leads from the bottom of the cylinder or casing.

At 3—3 I have shown the usual bearings at the ends of the casing these forming journaled bearings for the revolving shaft 4 extending through said casing, this shaft being a part of the rotor B. In order to provide a spiral rotor I mount upon the revolving shaft 4 a series of thin disks 5 and which are preferably constructed of metal such as steel, each disk having a central opening 5' through the hub 6 thereof for the passage of the shaft. One of these disk sections is shown in detail in Fig. 4, each disk being so constructed and formed that when a series of the same are mounted upon the shaft with the hubs thereof in end to end contact a unitary complete spiral or screw results as is shown in Fig. 1. It is, of course, to be understood that the spiral may have any desired pitch, depending of course, on the size of the engine and the work to be done. These disk sections carried by the shaft may be held solid against endwise movement by any suitable means such as the stop collars 7, one or both of which may be adjusted along the shaft and held in position by set screws 8. In fact, I do not limit myself to any specific manner of mounting the spiral sections of the rotor upon their shafts, as this may be accomplished in numerous ways well known to those skilled in the art.

From the above description, taken in connection with the accompanying drawings, the construction and operation of my invention will be readily apparent. The motive fluid, such as the steam, is taken from the boiler or source of supply and enters the casing or stator through the intake pipe 1. Thence it passes through the casing toward the exhaust or outlet 2, and in its travel impinges or acts upon the blades or disks of the spiral, passing from one to the other, the motive fluid spending its direct energy upon the spiral so that the latter is caused to revolve with great rapidity.

It will be seen that I have provided an exceedingly simple and compact turbine engine capable of economically obtaining its maximum efficiency.

While I have herein shown and described one particular embodiment of my invention,

I wish it to be understood that I do not confine myself to all the precise details of construction herein set forth merely by way of illustration, as modification and variation may be made without departing from the spirit of the invention or exceeding the scope of the appended claims.

What is claimed is:

1. In a turbine engine, the combination with a casing having a fluid intake at one end thereof and exhaust outlet at the opposite end, of a revolving shaft mounted within the casing and a series of disks mounted upon the shaft, each disk constituting a section of a spiral, so that when the disks are assembled on the shaft a complete spiral rotor is formed.

2. The combination with a casing having an inlet at one end and an outlet at the opposite end for the motive fluid, of a shaft rotatably journaled in the casing and a series of thin metallic disk like sections, each having a central or hub opening, through which the shaft passes when the disks are mounted thereon, said assembled disks forming in conjunction with the shaft a complete spiral rotor.

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

PAUL P. PIERCE.

Witnesses:

ALLAN M. POPE,

GUIDE F. VERLEECK.