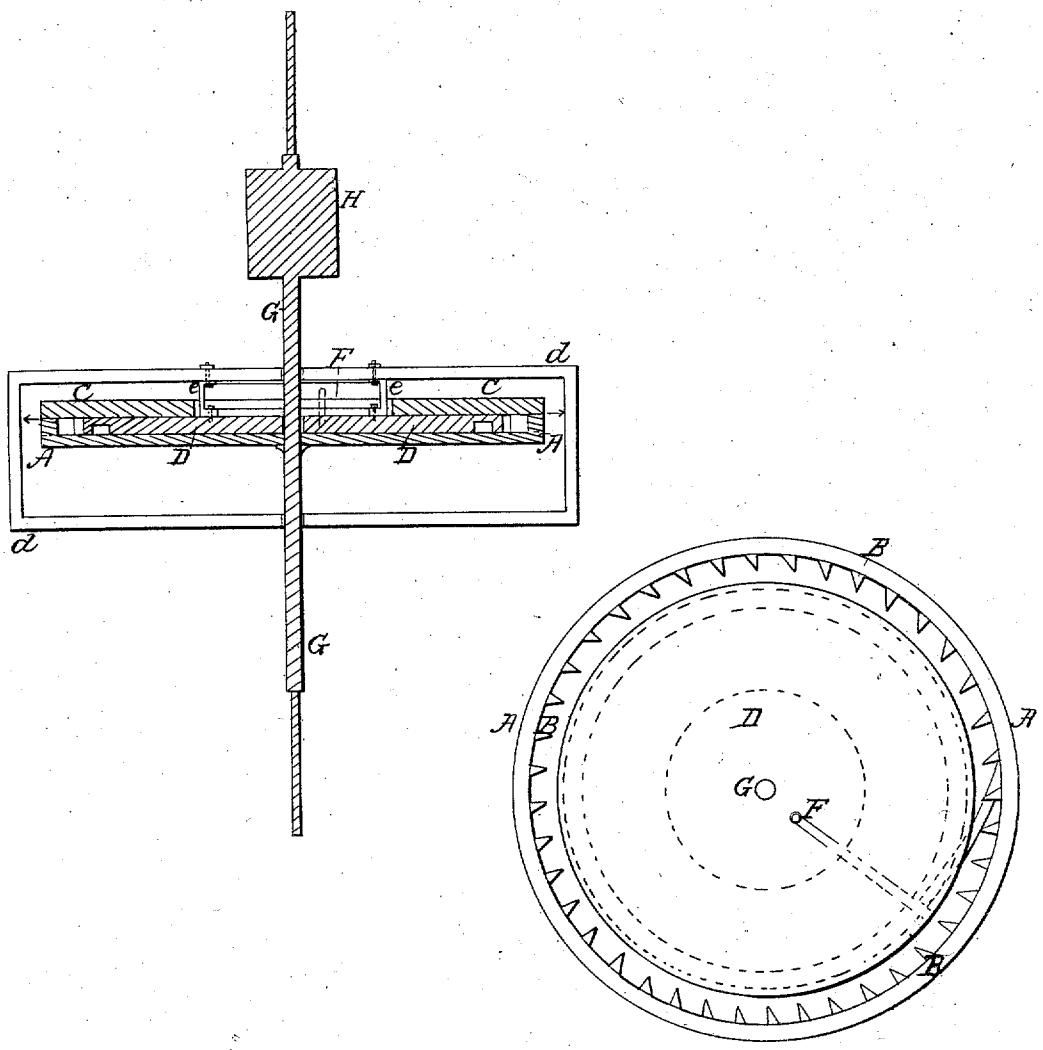
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S. WHITMAN.

ROTARY STEAM ENGINE.

Patented June 25, 1836.



June 25. 1836 389

Shepherd Whitman

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Letters Patent

The Schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Shepherd Whitman himself of his improvement in the Rotary Steam Engine.

To all persons to whom these presents shall come, Shepherd Whitman in the County of Floyd and State of Indiana and Town of New Albany Physician and Engineer sends Greeting. Be it known that I the said Shepherd Whitman have after patient and investigation and at great expense invented and put to use a new and useful improvement in the mode of making steam to produce mechanical power, called Whitmans Rotary Steam Engine, which is described in the following words to wit. It consists of a cast iron wheel twenty eight inches diameter and when finished is an inch thick having on its circumference a rim or flange projecting over one side like the flanch of a cast iron boiler head or like the cover of a muff &c. to the distance of one inch, and one inch deep. On the inside of this rim are cast teeth, the section of which are triangular, and are something like the teeth of a rag or ratchet wheel, only the teeth are on the inside. Thirteen of these teeth are 5/8 of an inch deep and 3/4 of an inch broad on their base and one inch long they stand about 1 1/2 inches asunder and in all cases the spaces between the bases of the teeth should be equal to the bases of the teeth themselves. These teeth are enclosed by the plate or disk of the wheel on one side, and on the other side by a circular plate about 5/8 inches broad and 28 inches diameter screwed steam tight to the rim of the main wheel. There is a hump on the wheel on a shaft 20 inches long and the body of the shaft is about one and one half inches diameter, the two journals are 3/4 of an inch diameter and four inches long.

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This shaft may be made of steel or iron but steel is the best. The journals run on leather but for large ones good ball metal is thought to be preferable. There is a central stationary wheel secured on its proper place by fastenings to the cast iron box which envelopes the whole. This central stationary wheel is of such diameter that when placed between the sides of the main wheel and the flat cover or ring that the bottom of the groove wheels is made around the whole circumference of this stationary wheel, which is one inch wide 3/8 of an inch deep will approach the inner points of the buckets to the distance of 3/4 of an inch. This central stationary wheel has attached to it at the upper side a conductor or conveyer of the steam which directs the steam to the face of the teeth or buckets directing the steam in a line as near at right angles with the radius of the wheel as may be. The mouth of the conductor stands in the groove of the stationary central wheel the opening of which at the discharging point is one inch long 3/16 wide. The case which envelopes the engine may be made square or round as best suits the fancy of the builder but if made square room may be left at the bottom to heat the supply water. The steam escapes immediately behind the conductor by an opening made further from it through the centre stationary wheel and is discharged into the case or envelope through a circular opening around the wheel shaft and thence to the open air through an opening of sufficient size at any convenient place. On the shaft towards one end is placed a cast iron or other metal pulley 5 inches diameter and 6 inches long the belt passing a leather belt over the surface of which some 5 or 6 feet diameter and revolving the motive power is easily transposed. The motion of this engine will be when the steam is at one hundred pounds to the inch square about sixty thousand revolutions per minute when at work but when running

using without any load. Its motion would be something like
10 or 11 thousands per minute. The opening of ~~an~~ eighth part of a
square inch will discharge as much steam at 100 pounds expan-
sive force as 15 feet of boiler fire surface will make under ordi-
nary circumstances. The engine I have first described having
an opening of 13/64 of an inch would require 12 X 15 fire surface,
180. and would require two cylinder boilers 28 inches diame-
ter and 26 feet long. This would produce about a 30 horse
power or a power of 460 pounds moving at the rate of 1050 feet
per minute. The proportions of this engine may be varied
to infinity. but the one here laid down is at the time the best for
a 30 horse power engine. But where the power amounts to
100 or thereabouts I think the diameter of the wheel should
be increased &c. But it is the unanimous opinion that
the diameter of the wheel in no case ought to exceed five feet.
Bands or belts are in all cases to be used where the motion
exceeds that of a mill stone. To reduce the motion of the engine
here described making 2000 revolutions — the pulley on the shaft
being 5 inches. A drum 5 feet diameter would reduce it
to 4166 revolutions and this motion can be easily reduced
further to suit any purpose whatever by other bands and
pulleys. It should be remarked that the gear should always
be so as to give the engine not less than five thousand revolutions
when the wheel is 28 inches diameter or you cannot obtain
the power of the steam or use other words the motion of the
circumference of the wheel should never be less than one
half of the velocity of the steam you are working. See 10th
the motion is about 1800 hundred pr second. or 108.000 feet
per minute for as the one half that or 54.000. A further
description of the engine is deemed unnecessary and the rea-
der is referred to an examination of the models at the pat
tent office made on a scale of ½ of an inch to an inch
in all its essential parts. The principle ground on which

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a patent is claimed are the following: 1st That the steam is
supplied on the outside of the valve in such a manner as
to prevent all condensation and resulting loss of heat by the
influence of the steam. 2d The form of the segment
which the steam is applied to actuate, having two such
each other by means of an inclined surface. The steam
is confined by the centrifugal force. 3d It is dis-
closed the application and use of hollow shafts. 4 That
form of pressure chamber for steam much more powerful
than any other which can be kept in use from other
causes. Claiming that the above is a true description of
this my said invention I have hereto set my hand this
12th day of August in the year of our Lord one thousand
eight hundred and sixty-two.

Witness
Chas. Shafner
L. F. Adams

Orville Lee

Enrolled
Mch