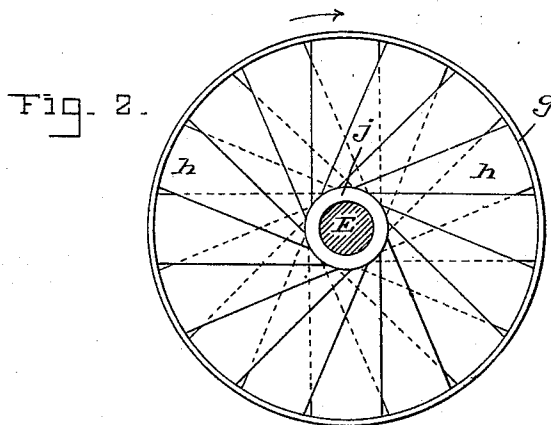
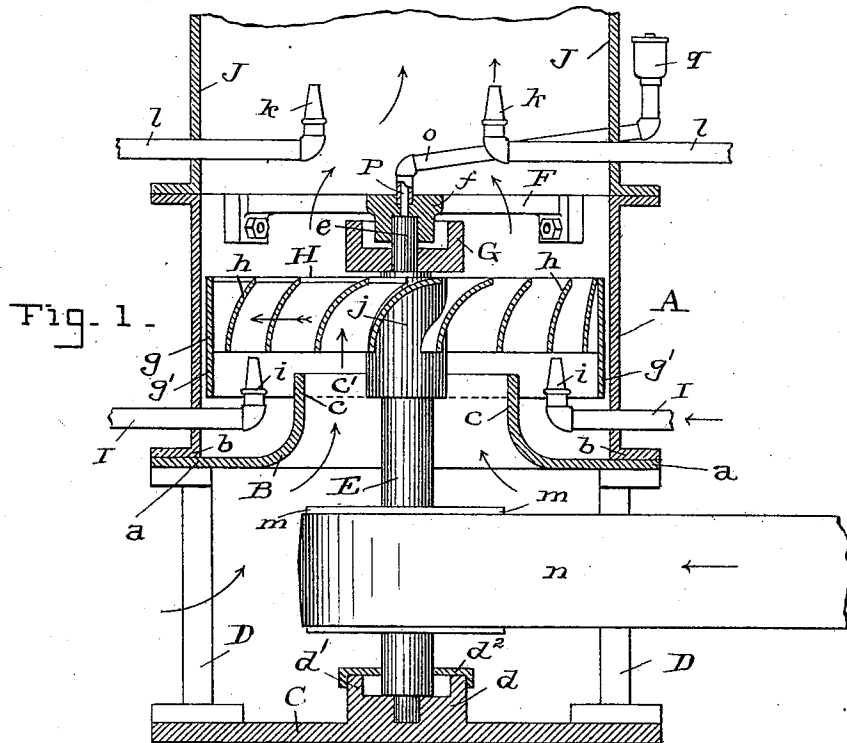


(No Model.)

J. C. SLAUGHTER.
STEAM ENGINE.

No. 575,576.

Patented Jan. 19, 1897.



WITNESSES : -

Lee J. Van Horn.
Charles B. Mann Jr

INVENTOR :-

Joel C. Slaughter.
By Chas B. Mann
ATTORNEY.

UNITED STATES PATENT OFFICE.

JOEL C. SLAUGHTER, OF DALLAS, TEXAS, ASSIGNOR OF ONE-FIFTH TO EDWARD E. DAVIS, OF SAME PLACE, AND WILLIS M. COPELAND, OF EVANSVILLE, INDIANA.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 575,576, dated January 19, 1897.

Application filed June 11, 1896. Serial No. 595,074. (No model.)

To all whom it may concern:

Be it known that I, JOEL C. SLAUGHTER, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Steam-Engines, of which the following is a specification.

This invention relates to an improved steam-engine.

10 The object of the invention is to provide a high-speed rotary engine wherein the steam-impelled wheel shall revolve in a horizontal plane within an upright open cylinder.

15 The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the engine. Fig. 2 is a plan view of the wheel.

20 The cylinder A stands vertically or upright and has an open top and in its bottom is provided with an air-inlet head B. This head has a horizontal rim-flange *a*, which is secured to the lower end *b* of the cylinder, and at the center this inlet-head has an upward-projecting funnel-rim *c*, which is open, as at 25 *c'*. Drafts of air pass up through this opening *c'*.

30 The letter C designates a base-plate, and standards D rest upon this plate and support the inlet-head and the cylinder. The base-plate has a central step or bearing *d* for the lower spindle end of the upright shaft E. An oil-cup *d'* surrounds this step, and has a cover *d''* to exclude dirt. The upper spindle end *e* of this shaft has bearing *f* in a tripod-shaped 35 cross-bar F, which is secured in the cylinder. This upper spindle end *e* carries a large cup G, which takes up under and surrounds the bearing *f*, and serves a double purpose, to wit, to contain oil or drippings of oil from an oil-feed device *o* and also to protect said bearing *f* from the upward-moving currents of steam and air and thereby shield the lubrication which is on the spindle *e* and the said bearing from the drying effect of said upward-moving currents. The upper oil-cup 40 G is to be provided with a cover similar to that on the lower cup.

45 The upright shaft E carries the horizontal wheel H, which is provided with a rim *g*, that fills the cylinder and has radial blades *h*, extending from the hub *j* to the rim. The

blades are curved or inclined at an angle, as shown in Fig. 1. The lower part of the wheel-rim extends downward, as at *g'*, below the said blades and also lower down than the 55 top edge of the funnel-rim *c* of the inlet-head. In other words, the stationary funnel-rim *c* projects up within the lower part *g'* of the wheel-rim.

Steam-pipes I, one, two, or more, pass 60 through the side of the cylinder A immediately below the wheel-rim, and within the cylinder each pipe has a discharge-nozzle *i*, located between the funnel-rim and the said wheel-rim *g'* and pointing upward toward the 65 blades *h*. The size of the nozzles *i* and the number to be employed are determined by the size of the engine. The steam-pipes must come from a steam-boiler carrying ordinary high-pressure steam, and the upward blasts 70 of steam escaping from the nozzles *i* will impinge directly against the angle-blades *h* of the wheel and cause the latter to revolve. As the wheel revolves an upward current is produced and the atmosphere flows in at the bottom, as indicated by the darts, and passes up 75 through the opening *c'* in the funnel-rim.

A stack or pipe J is mounted above the cylinder A and is of the same size and should extend to a height suitable for promoting a 80 rapid draft, so as to get the best results. I have found by actual experiment that better results are produced by using a stack than can be obtained without it.

85 In order to increase the rapidity of the upward draft in the stack, steam jets or nozzles *k* are provided. These are located in the stack J, and a steam-pipe *l* supplies each nozzle. These nozzles are above the wheel and serve to expel or force out the air in the stack, and 90 this, together with the heat that is in the stack, causes a suction of air from below and up through the wheel, which increases both the speed and power. This is an action of both steam and air. 95

The space below the cylinder, where the standards are located, is entirely open, and a driving-pulley *m* is here mounted on the upright shaft. A belt *n* leads from this pulley to drive any machinery that may be desired. 100

The oil-feed device comprises a pipe *o*, which connects at the upper side of the tripod-shaped

cross-bar with an opening or passage P, and delivers oil or lubricating material into the bearing *f*. This pipe *o* passes through the wall of the stack, and on the outside an oil-cup *q* is attached to the pipe.

A governor device may be employed, but none is shown in the present instance, because engines for a special service would require one style of governor, while for a different service another style might be necessary.

Having described my invention, what I claim is—

1. In a rotary engine, the combination of a vertical cylinder open at the top; a horizontal wheel having a rim that fills said cylinder and provided with angle-blades extending from the hub to the rim—said rim extending down below the blades; an inlet-head below the cylinder and provided at its center with an open funnel-rim which projects up within the said downward-extending part of the wheel-rim; and steam-discharge nozzles pointing upward toward the wheel-blades and located between the said funnel-rim and the wheel-rim.

2. In a rotary engine, the combination of a vertical cylinder open at the top; a base-plate; standards resting on said base-plate and supporting the said cylinder; a horizontal wheel having a rim that fills said cylinder and provided with angle-blades extending from the hub to the rim; an upright shaft whose lower spindle end is stepped in a bearing and carries said wheel; an inlet-head below the cylinder and provided at its center

with an open funnel-rim which surrounds the upright shaft; and steam-discharge nozzles pointing upward toward the wheel-blades.

3. In a rotary engine, the combination of a vertical cylinder open at the top; a horizontal wheel having a rim that fills said cylinder and provided with angle-blades extending from the hub to the rim; an upright shaft whose lower spindle end is stepped in a bearing and carries said wheel and whose upper spindle end, *e*, has bearing, *f*, in a cross-bar; a cup, *G* carried on the said upper spindle end taking up under and surrounding said bearing; an inlet-head below the cylinder and provided at its center with an open funnel-rim which surrounds the upright shaft; and steam-discharge nozzles pointing upward toward the wheel-blades.

4. In a rotary engine, the combination of a vertical cylinder open at the top; a horizontal wheel having a rim that fills said cylinder and provided with angle-blades extending from the hub to the rim; an open inlet-head below said cylinder; steam-discharge nozzles below the wheel and pointing upward toward the wheel-blades; a stack mounted above the open top of the cylinder; and steam-discharge nozzles in the stack and above the said wheel.

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

JOEL C. SLAUGHTER.

Witnesses:

S. J. NEWCOMB,
W. D. FLETCHER.