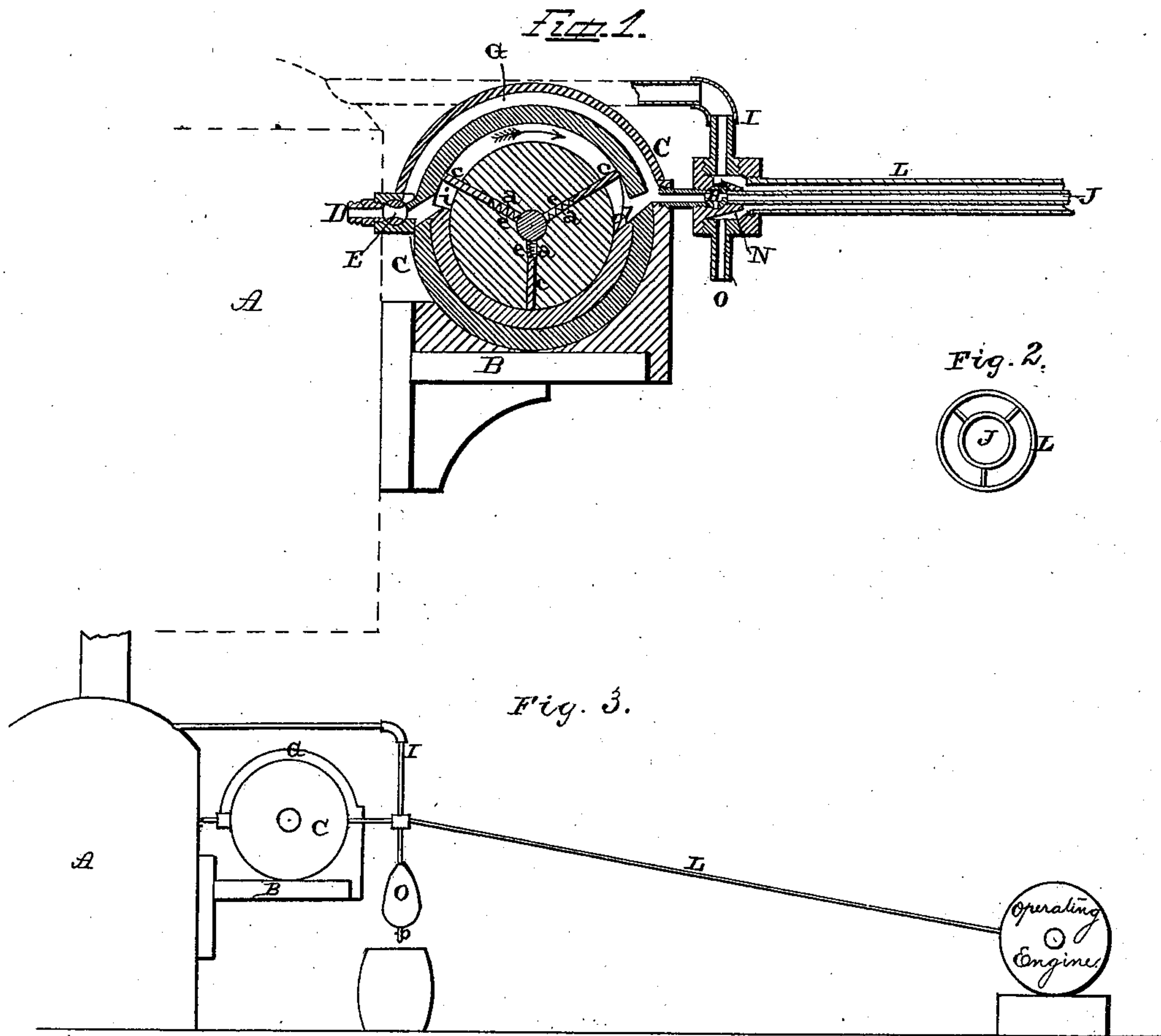


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Steam-Engine.

No. 227,753.

Patented May 18, 1880.



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# UNITED STATES PATENT OFFICE.

WILSON N. FORT AND JAMES A. SCOTT, OF HURRICANE HILL, ARKANSAS.

## STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 227,753, dated May 18, 1880.

Application filed February 21, 1880.

*To all whom it may concern:*

Be it known that we, WILSON N. FORT and JAMES A. SCOTT, of Hurricane Hill, in the county of La Fayette and State of Arkansas, have invented certain new and useful Improvements in Steam-Engines; and we 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to an improvement in steam-engines which are intended to be used especially for ginning cotton, and must necessarily be operated a considerable distance from the fire, for the purpose of protecting the cotton or other inflammable article being worked from combustion; and it consists in the combination of a rotary engine for operating the pump, and which is placed in contact with and supported by the steam-boiler, and which has a steam-port made in its casing, whereby the steam may be passed either directly through the pump-engine to operate the pump or through the casing around the engine directly to the driving-engine.

It further consists in incasing the steam-pipe all the way from the engine-pump to the engine by a larger pipe, through which the exhaust-steam returns as far as the engine-pump, for the purpose of keeping the steam-pipe hot, to assist in the draft of the boiler, and to conduct any condensation back to the pump for resupply, all of which will be more fully described hereinafter.

In the accompanying drawings, Figure 1 is a vertical section of the pump-engine and its attachments. Fig. 2 is a vertical cross-section of the steam-pipe and its covering or protector. Fig. 3 is a side elevation of our invention complete.

A represents a steam-boiler of any desired shape, size, or construction, and which has the support B secured directly to its side, for the purpose of placing the rotary engine C for operating the pump upon it. By thus placing the engine-pump in direct contact with the boiler the pump and its engine do not take up so much room, and do not require a separate and independent base to support it. This en-

gine-pump C may be either of the construction here shown or any other that may be preferred, and is coupled to the pump by means of a cam on the end of its shaft or other suitable gearing.

The steam-pipe D, which leads from the boiler, is provided with a cock or faucet, E, which may be so turned as to direct the steam directly through the rotary engine C, or shut it off from this engine and pass it through the port G, made in the casing of the engine C, so as to send the live steam directly to the operating-engine, which is to be located at any suitable distance away from the fire, so that the operating-engine can be used in ginning cotton, thrashing wheat, or working upon any other inflammable article where it would be dangerous to have a fire near by.

When the steam is passed directly into the engine C the feed-water pump alone may be operated, and the exhaust-steam is conducted, by means of the faucet H, into the escape-pipe I, which may be connected to the stack of the engine for the purpose of assisting the draft; or the steam may be passed on to the main engine and both the pump and engine operated together.

Where the operating-engine alone is to be run the two cocks are so turned as to send the live steam through the port in the casing of the engine C and through the steam-pipe J directly to the engine. This steam-pipe J is inclosed its whole length by a large pipe, L, through which the whole of the exhaust-steam from the engine is passed directly back toward the boiler. By thus inclosing the steam-pipe and keeping it surrounded constantly by the exhaust-steam the condensation of the live steam is prevented.

The exhaust-steam can be used in assisting the draft of the boiler, and all of the water of condensation runs through the passage N in the shell of the cock or faucet H down through the pipe O into the barrel or other vessel placed to receive it. From this vessel the water is pumped back into the boiler, to be again used. Where the water is in any way scarce this device for catching the condensed steam will prove of the greatest service.

Heretofore, where it was necessary to work the engine at a distance from the fire, long



lines of shafting have been employed, or the pipe through which the steam was conveyed has been left comparatively unprotected, and the consequence has been that a greater expenditure of power was necessary to drive the engine than is necessary in this case.

By thus using two pipes—one to inclose the other—the cost of our apparatus over those now in use is greatly reduced, and there are no joints or couplings of any kind to get out of order.

The engine C consists of a revolving core, having a number of sockets, *a*, into which the pistons *c* close after passing the point *d*, and which pistons are forced outward to catch the force of the incoming steam by means of the coiled springs *e* as soon as the outer ends of the pistons pass the point *i*. Inside of the casing is placed a suitable cam or groove, which causes the pistons to close gradually inward after they have reached a certain point, so as to be out of the way during the rotation of the core until the point *i* is again reached.

Having thus described our invention, we claim—

1. A rotary pump-engine placed near the boiler, and having a port through its frame, in combination with a suitable operating-engine located away from the boiler, but con-

nected thereto by means of a steam-pipe, said port and pipe being provided with suitable valves, whereby either one of the engines or both together can be operated, substantially as shown.

2. The combination of the steam-boiler, steam-pipe D, provided with cock or faucet E, rotary pump-engine C, and faucet H with an operating-engine placed at a distance from the boiler, the faucets being so constructed as to send the steam directly through the engine C into the stack or to the operating-engine, substantially as described.

3. The combination of the rotary pump-engine and an operating-engine located at a distance from the boiler, with the steam-pipe J, inclosed in exhaust-pipe, and the shell of the cock or faucet H, having a port made through it, so that the water of condensation can be caught, to be again used in the boiler, substantially as specified.

In testimony that we claim the foregoing we have hereunto set our hands this 5th day of February, 1880.

WILSON NELMS FORT.

JAMES ALPHONZO SCOTT.

Witnesses:

W. C. MERITT,

W. L. NANCE.