

(No Model.)

2 Sheets—Sheet 1.

P. S. RUSH.
STEAM ENGINE.

No. 346,616.

Patented Aug. 3, 1886.

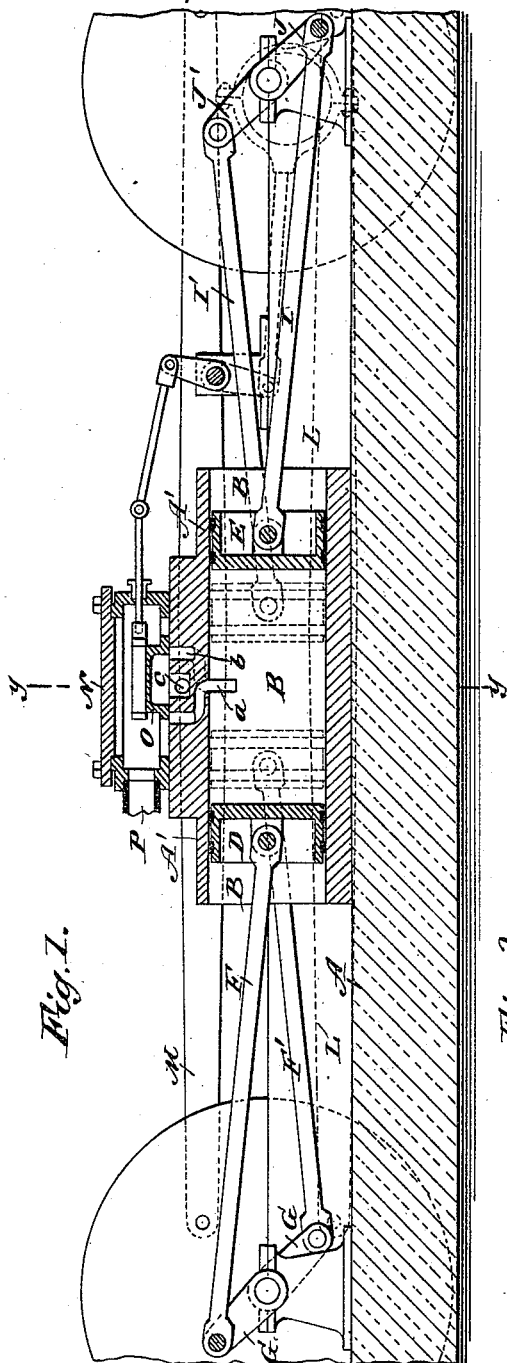
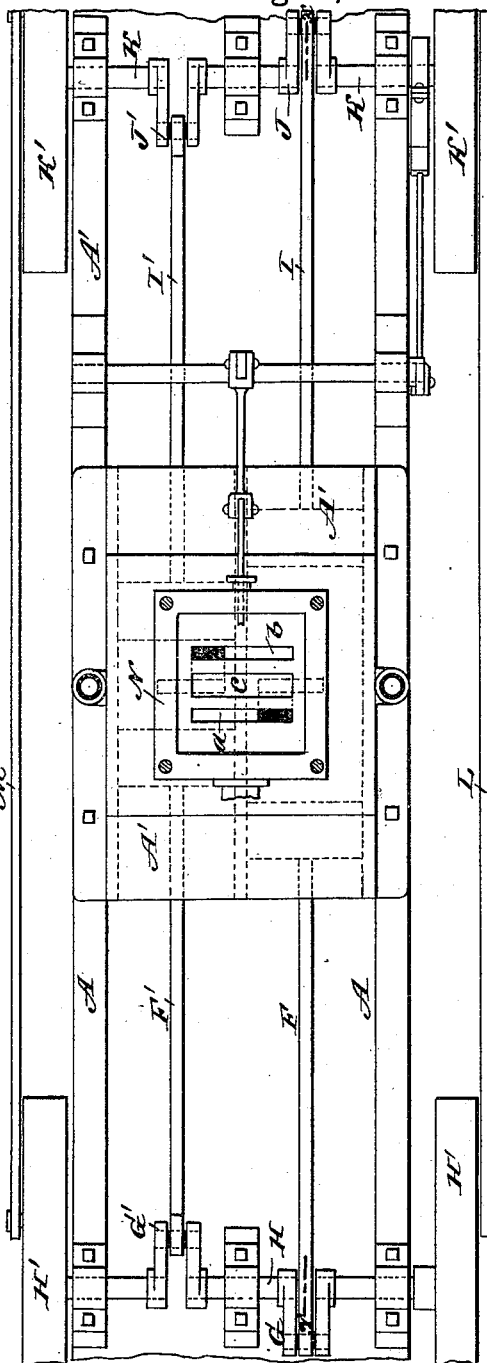


Fig. 1.

WITNESSES:

W. S. Seward
C. Sedgwick

Fig. 2.



INVENTOR:

P. S. Rush
BY *Munn & Co.*
ATTORNEYS.

(No Model.)

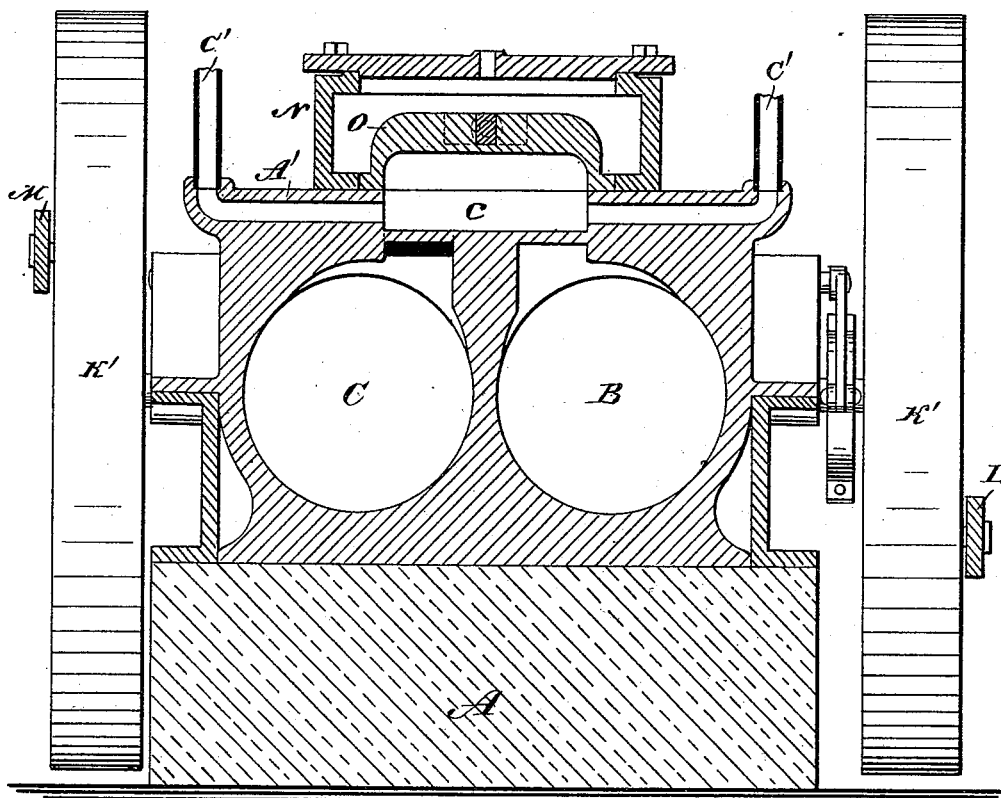
2 Sheets—Sheet 2.

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Fig. 3.



WITNESSES:

Chas. Meyer
E. Sedgwick

INVENTOR:

P. S. Rush
BY *Munn & Co*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

PETER S. RUSH, OF ATLANTA, TEXAS.

STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 346,616, dated August 3, 1886.

Application filed March 12, 1886. Serial No. 195,045. (No model.)

To all whom it may concern:

Be it known that I, PETER S. RUSH, of Atlanta, in the county of Cass and State of Texas, have invented a new and Improved Steam-Engine, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved steam-engine, in which the pressure of the live steam is completely and very advantageously utilized.

The invention consists in the construction and arrangement of parts, as will be hereinafter fully described and claimed.

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

Figure 1 is a longitudinal sectional elevation of my improvement on the line *x x*, Fig. 2. Fig. 2 is a plan view of the same with the steam-chest cover and slide-valve removed. Fig. 3 is a vertical cross-section on the line *y y*, Fig. 1.

In the center of the frame A is fastened a casting, A', provided with the cylinders B and C, placed alongside of each other, each having two pistons, D and E, the pistons D being connected by means of the pitmen F and F', with the crank-arms G and G' on the shaft H, and the pistons E being connected by means of the pitmen I and I' with the crank-arms J and J' on the shaft K. The shafts H and K are mounted in suitable bearings on the frame A, and are provided with additional crank-arms or pulleys, H' and K', which are connected with each other by the rods L and M. The steam-chest N is placed centrally on top of the casting A', above the two cylinders B and C, and is connected with the cylinder B by the steam-inlet *a*, which leads from one end of the steam-chest N into the center of the cylinder B. The steam-inlet port *b* leads from the other end of the steam-chest N into the center of the cylinder C. An exhaust-port, *c*, is on top of the casting A', between the ports *a* and *b*, and connects on both sides of the casting with suitable exhaust-pipes, *c' c'*. The common slide-valve O in the steam-chest N is operated from either the shaft H or the shaft K, in the usual manner, by suitable connections, which are well known and need no

further description. The steam-chest N is provided with the steam-inlet pipe P.

The operation is as follows: The pistons in one cylinder recede from each other, while the pistons in the other cylinder advance toward each other by means of the relative positions of the pitmen and their respective crank-shafts. When steam is admitted to the steam-chest N by means of the inlet-pipe P, the port *a* (supposed to be open) admits steam to the cylinder B, and forces its pistons D and E to recede from each other until they nearly reach the ends of their strokes; then the slide-valve O will close the port *a* and open the port *b*, where- by steam is admitted to the cylinder C. The pistons D and E in this cylinder were advancing toward each other while the pistons in the other cylinder, B, were receding from each other, and they are now forced away from each other by the reversing of the slide-valve O and the consequent admission of steam into the cylinder C. It will be seen that when the pistons advance toward each other in either cylinder they exhaust by their respective ports *a* or *b* into the exhaust-port *c* by the action of the slide-valve O. The pitmen and crank-arms are placed in relative positions to their respective pistons in the cylinders B and C, and the connections L and M, between the shafts H and K, are such as to produce an easy running of the engine, by avoiding the dead-center position on all the crank-arms at one time.

I am aware that an engine has been composed of two cylinders open at their ends, provided with two pistons each, a single steam-chest having inlet-ports leading to the center of the cylinders, and exhaust-ports near the opposite ends of the said cylinders; also, that two cylinders have been each provided with two pistons, operated from two double crank-shafts carrying the running-wheels, which wheels were connected by drive-rods, and each cylinder was provided with separate steam-chest, and I do not claim the same as of my invention.

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

1. The combination, with the two cylinders, a single steam-chest, an inlet-port leading from the ends of said chest to the center of

each cylinder, and an exhaust-port in the center of the steam-chest, between the two inlet-ports, of the two pistons in each cylinder, substantially as set forth.

5 2. The combination, with the casting A', formed with two cylinders, B C, open at their ends, of the steam-chest N, the inlet-ports *a b*, leading from the ends of the steam-chest to the center of the cylinders B C, respectively,
10 the exhaust-port *c*, common to both cylinders,

the pistons D D E E, the crank-shafts H K, piston-rods connecting the pistons and crank-shafts, the outer cranks, K K', and the rods L M, connecting said outer cranks, substantially as set forth.

PETER S. RUSH.

Witnesses:

W. A. MILES,
B. H. SCOTT.