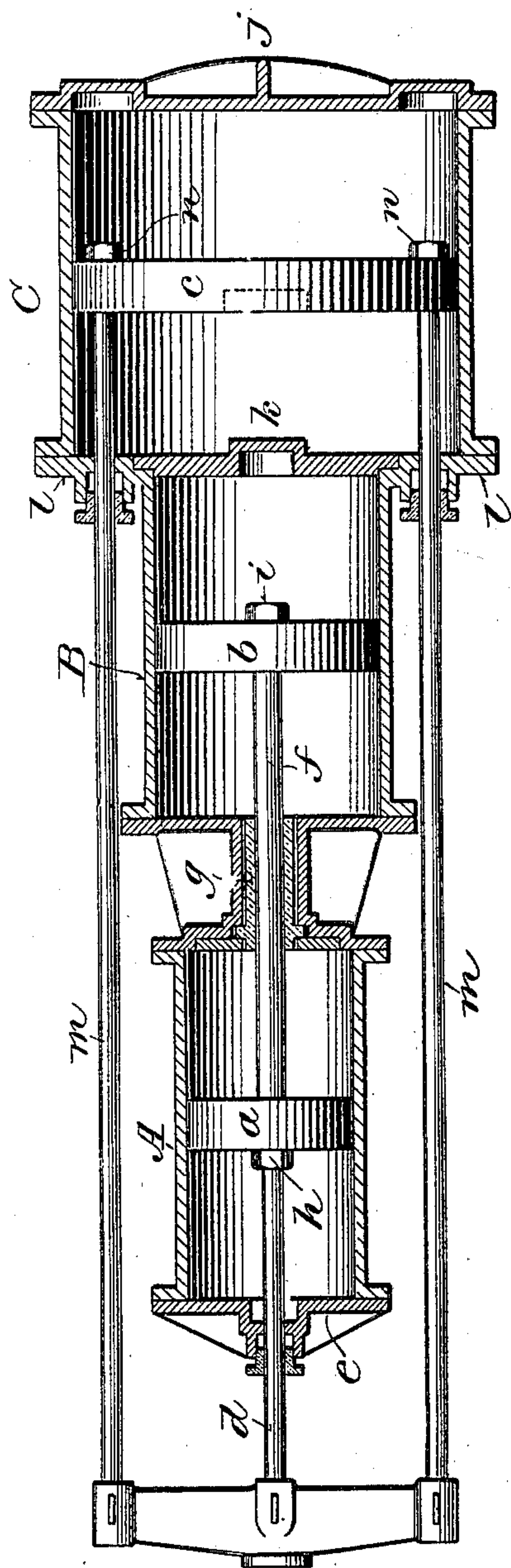


No. 719,367.

PATENTED JAN. 27, 1903.

F. M. PRESCOTT.
TRIPLE EXPANSION ENGINE.
APPLICATION FILED OCT. 16, 1902.

NO MODEL.



Witnesses:
Geo. W. Young,
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UNITED STATES PATENT OFFICE.

FREDERICK M. PRESCOTT, OF MILWAUKEE, WISCONSIN.

TRIPLE-EXPANSION ENGINE.

SPECIFICATION forming part of Letters Patent No. 719,367, dated January 27, 1903.

Original application filed February 14, 1898, Serial No. 670,225. Divided and this application filed October 16, 1902. Serial No. 127,583. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK M. PRESCOTT, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Triple-Expansion Engines, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

This invention relates to triple-expansion engines in which the cylinders are arranged in tandem end to end.

The main object of the invention is to facilitate access to and removal of the pistons and piston-rods without detaching or removing either of the several cylinders.

It consists in certain novel features in the construction and arrangement of component parts of the engine, as hereinafter particularly described, and pointed out in the claim.

The accompanying drawing is an axial section of a triple-expansion tandem engine embodying the invention.

A, B, and C designate, respectively, the high, intermediate, and low pressure cylinders arranged end to end in line with each other, and *a*, *b*, and *c* are the pistons fitted in said cylinders.

The high-pressure cylinder A is placed in front or next to the cross-head D, to which the several piston-rods are attached at their front ends, and the low-pressure cylinder C is placed at the rear or farthest from the cross-head.

The high-pressure piston *a* is connected directly and centrally with the cross-head D by a single rod *d*, which passes through a stuffing-box in the front head E of cylinder A, and the intermediate piston *b* is directly and centrally connected with the piston *a* by a rod *f*, passing through a sleeve or bushing *g* in the intervening cylinder-heads. The rod *f* may be formed integrally with or separate from the rod *d*, of which it constitutes an extension. It is preferably made integral with and larger than the rod *d*, so as to form a shoulder, against which the piston *a* is secured by a nut *h*, accessible through the front end of the cylinder A by the removal of its head *e*. The piston *b* is secured to the rear reduced end of the rod or extension *f* by a nut *i*, which is accessible through the rear end of cylinder B, as hereinafter explained.

The rear head *j* of the low-pressure cylinder C is detachable and removable, so as to permit the withdrawal of the piston *c* from said cylinder.

The intermediate and low pressure cylinders B and C are placed close together and have a single removable head *k* between them to permit the withdrawal of the piston *b* and the rods *d* and *f* through the low-pressure cylinder *c*. The annular space between the intermediate cylinder B and the low-pressure cylinder C around the head *k* is closed by a ring or flange *l*, which may be cast, as shown, with the cylinder B.

The low-pressure piston C is connected with the cross-head D by side rods *m m*, passing through stuffing-boxes in the ring or flange *l* exterior to the cylinders A and B, said piston being detachably secured to said rods by nuts *n n* or other suitable means accessible through the rear end of cylinder C.

From the foregoing description, in connection with the drawing, it will be obvious that access may be had to any of the several cylinders and any of the several pistons and piston-rods may be withdrawn therefrom by detaching and removing the cylinder-heads *e*, *j*, and *k* without detaching or displacing the cylinders.

I claim—

In a triple-expansion engine the combination of high, intermediate and low pressure cylinders arranged in tandem end to end, and each provided with a removable head, pistons fitted in the several cylinders, a single piston-rod centrally connecting the intermediate and high pressure pistons, a cross-head to which the front end of said rod is attached, and two piston-rods connecting the low-pressure piston with said cross-head exterior to the intermediate and low pressure cylinders, the intermediate and low pressure cylinders being close together and having a single removable head between them, substantially as described.

In witness whereof I hereto affix my signature in presence of two witnesses.

FREDERICK M. PRESCOTT.

Witnesses:

CHAS. L. GOSS,

JOSEPH F. KAMINSKY.