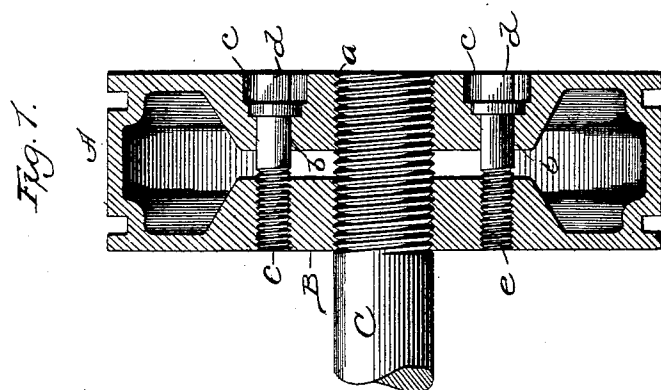
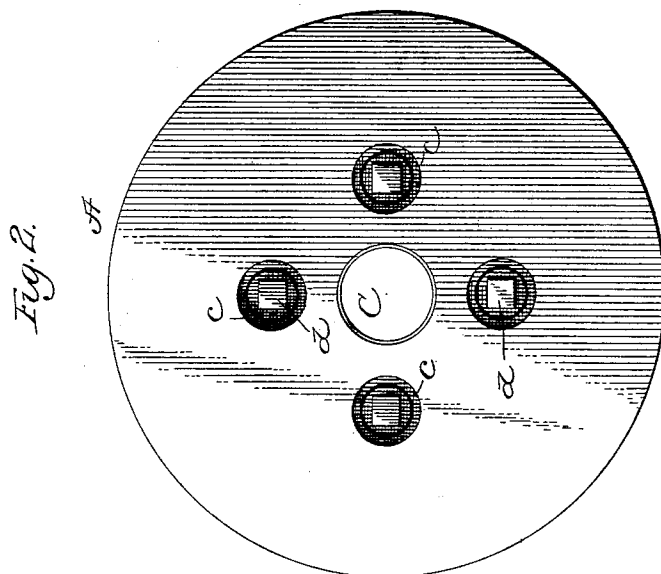
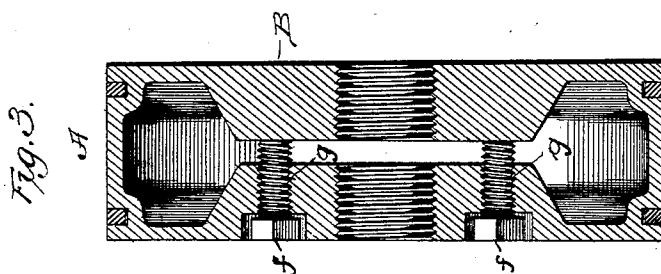


(No Model.)

E. J. ARMSTRONG.
PISTON FOR STEAM ENGINES.

No. 569,532.

Patented Oct. 13, 1896.



WITNESSES

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EDWIN J. ARMSTRONG, OF OSWEGO, NEW YORK, ASSIGNOR TO THE AMES
IRON WORKS, OF SAME PLACE.

PISTON FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 569,532, dated October 13, 1896.

Application filed December 26, 1895. Serial No. 573,352. (No model.)

To all whom it may concern:

Be it known that I, EDWIN J. ARMSTRONG, a citizen of the United States, residing at Oswego, in the county of Oswego and State of New York, have invented certain new and useful Improvements in Pistons for Steam-Engines; and I 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 appertains to make and use the same.

This invention relates generally to pistons for steam-engines, and particularly to the means for securing piston-rods thereto, and is specially adapted to compound engines of the tandem type, and it has for its object to provide a simple, durable, and secure means for fastening the pistons to the rod, so as to provide for their easy adjustment thereon and removal therefrom; and it consists in forming a piston with a divided hub, the parts of which are adapted to be moved relative to each other in order to cause them to clamp or grip the rod passing therethrough, as will be herein-
after more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a vertical cross-section through my improved piston; Fig. 2, a side elevation of the same; and Fig. 3 a vertical section of a piston, showing a modified form of adjusting the hubs.

Similar letters refer to similar parts in all the views.

A represents my improved piston, which, as clearly shown, is cast hollow and with its hub B divided or formed in two parts, threaded as one, to receive the screw-threaded portion *a* of a piston-rod C. Through the hubs are formed perforations in line with each other, the perforations *b* of one hub being blank or unthreaded and countersunk, as at *c*, to receive the unthreaded portion and head of a bolt *d* therein, the perforations *e* of the other hub being screw-threaded to receive the threaded portion of said bolt *d*.

It is desirable in some cases that the pistons be easily removable from their rods, and particularly so in tandem engines, where also longitudinal adjustment of the pistons on the piston-rods is a desirable feature. My invention possesses both these features and at the same time insures the perfect security of the fastening of the pistons and rods together.

The piston is secured on the threaded por-

tion of the rod, and when in the desired position the bolts *d* are inserted in the openings or perforations *b* and screwed into the opposite perforations *e*, the heads of the latter fitting within the countersunk recesses *c*, and upon tightening said bolts the hubs are drawn toward each other to cause them to bind on the threads of the rod and effectually preventing the piston working loose.

In Fig. 3 I show a modified form of my invention, in which I employ set-screws *f* to force the hubs apart in order to cause them to bind on the threads of the rod. This I accomplish by omitting the perforations from one of the hubs and forming screw-thread perforations *g* in the other, with a countersunk recess surrounding the same, into which the set-screws are driven and made to abut against the other hub and thus forcing the hubs apart and producing practically the same result, although I do not regard it as desirable a construction as the one first described.

It will be observed that the piston above described is easily removable from and readily adjustable longitudinally on its rod and that the same may be securely fastened to the rod in its proper position after adjustment thereto.

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

1. The combination, with a screw-threaded piston-rod, of a piston having a split or divided hub formed with a screw-threaded opening for the piston-rod, and means for springing the parts or halves of said hub in opposite directions, whereby the piston may be clamped on the rod, substantially as described.

2. A piston cast with two hubs having a screw-threaded opening for a piston-rod, and perforations formed in one of said hubs and corresponding screw-threaded perforations formed in the other, and bolts for springing said hubs toward each other, whereby the piston may be clamped on a piston-rod, substantially as described.

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

EDWIN J. ARMSTRONG.

Witnesses:

J. F. BEALE,

H. M. STERLING.